

ENTERED

F 2302

San Francisco Law Library

436 CITY HALL

No. 162052

EXTRACT FROM RULES

Rule 1a. Books and other legal material may be borrowed from the San Francisco Law Library for use within the City and County of San Francisco, for the periods of time and on the conditions hereinafter provided, by the judges of all courts situated within the City and County, by Municipal, State and Federal officers, and any member of the State Bar in good standing and practicing law in the City and County of San Francisco. Each book or other item so borrowed shall be returned within five days or such shorter period as the Librarian shall require for books of special character, including books constantly in use, or of unusual value. The Librarian may, in his discretion, grant such renewals and extensions of time for the return of books as he may deem proper under the particular circumstances and to the best interests of the Library and its patrons. Books shall not be borrowed or withdrawn from the Library by the general public or by law students except in unusual cases of extenuating circumstances and within the discretion of the Librarian.

Rule 2a. No book or other item shall be removed or withdrawn from the Library by anyone for any purpose without first giving written receipt in such form as shall be prescribed and furnished for the purpose, failure of which shall be ground for suspension or denial of the privilege of the Library.

Rule 5a. No book or other material in the Library shall have the leaves folded down, or be marked, dog-eared, or otherwise soiled, defaced or injured, and any person violating this provision shall be liable for a sum not exceeding treble the cost of replacement of the book or other material so treated and may be denied the further privilege of the Library.



Digitized by the Internet Archive
in 2010 with funding from
Public.Resource.Org and Law.Gov

No. 2994

In the
United States Court of Appeals
For the Ninth Circuit

No. 14695

See Vol. 2993

MID-STATES INSURANCE COMPANY, a
corporation, and THE ANGLO CALIFOR-
NIA NATIONAL BANK OF SAN FRAN-
CISCO,

Appellants,

vs.

AMERICAN FIDELITY AND CASUALTY
COMPANY, INC., a corporation, AMERI-
CAN PLAN CORPORATION, a corpora-
tion, MARK HART, JOSEPH LOTZ and
RALPH L. SMEAD,

Appellees.

Appeal from the United
States District Court for
the Northern District of
California, Southern Di-
vision.

Honorable
Michael J. Roche,
Judge Presiding.

**BRIEF AND ARGUMENT FOR APPELLANT,
MID-STATES INSURANCE COMPANY.**

LEWIS SCHIMBERG,
MAYNARD GARRISON,
*Attorneys for Appellant, Mid-
States Insurance Company.*

WALLACE, GARRISON, NORTON & RAY,
Of Counsel.

FILED

SEP 12 1955

INDEX.

	PAGE
Jurisdiction	1
Statement of the Case.....	4
The business of Lotz and his appointments as General Agent for Mid-States and American Fidelity, respectively	4
The acts complained of.....	7
(a) Lotz' indebtedness to Mid-States and Amer- ican Fidelity at August 1, 1951.....	7
(b) The acts following the New York meeting on August 13, 1951, at the offices of Amer- ican Fidelity	7
(i) The termination of Lotz' agency for American Fidelity	8
(ii) Lotz' insolvency	8
(iii) The diversion of Mid-States' funds to American Fidelity and the creation of indebtedness from Lotz to Mid-States through the writing of large amounts of insurance to create a source of funds out of which to pay Lotz' in- debtedness to American Fidelity.....	9
(iv) The Public Service Rewrite.....	10
(v) The American Fidelity Rewrite.....	11
Errors Relied Upon.....	14
Argument	16
I. The Findings of Fact and Conclusions of Law specified in the errors relied upon are clearly erroneous	16
A. A finding is clearly erroneous when al- though there is evidence to support it, the reviewing court is left with the definite and firm conviction that a mistake has been com- mitted. The Court of Appeals is not bound by inferences or conclusions drawn by the trial court from its fact findings.....	16

B. There is no dispute in the evidence as to Lotz' liability to Mid-States in the amount of \$281,746.96, and the court erred in entering judgment in favor of Lotz.....	19
C. Lotz occupied a fiduciary relationship to Mid-States as its agent with respect to all matters within the scope of his agency, and the trial court erred in finding that no fiduciary relationship existed.....	20
An agent owes a duty to deal fairly with his principal, and must make full disclosure of all material facts surrounding a transaction that might affect the decision of his principal.....	25
D. Lotz clearly violated his fiduciary duties to Mid-States and the remaining defendants participated therein, and the trial court erred in refusing so to find.....	27
(i) There is no dispute in the evidence that Lotz was insolvent on August 1, 1951 and at all times thereafter. Lotz and American Fidelity knew of Lotz' insolvency, and such insolvency was not disclosed to Mid-States.....	30
(ii) Lotz breached his fiduciary duties to Mid-States in creating indebtedness to it while insolvent and diverting to American Fidelity premium collections on insurance written for Mid-States without full disclosure to it, for the purpose of paying his indebtedness to American Fidelity and with the full knowledge and participation of American Fidelity and American Plan.....	31
(iii) Lotz further breached his fiduciary duties of fair dealing and full disclosure in effecting the Public Service Rewrite, and the remaining defendants participated in such breach.....	32

(iv)	The American Fidelity rewrite was effected through fraudulent misrepresentations of American Fidelity and American Plan relied upon by Mid-States, and Lotz' further breach of his fiduciary duties to Mid-States, and the trial court's finding to the contrary is clearly erroneous	35
E.	The trial court erred in disregarding the written statements signed by Smead and Lotz. Where the testimony consists of documentary evidence the Court of Appeals (i) will give it the weight it deems it entitled to de novo, and (ii) will make its own determination as to the legal effect of documents or transactions.....	44
F.	Lotz was responsible for his own acts as well as those of his general manager Smead	48
G.	Mid-States had no knowledge of the wrongful acts of the defendants following August 13, 1951 until long after they had been effected and Lotz' indebtedness to American Fidelity had been discharged in full.....	52
II.	All who participate in the breach by an agent of his fiduciary duties to his principal, or who receive the benefits of such breach with knowledge that the agent's actions are in breach of such duties, are equally liable with him to the principal regardless of the extent of their participation	55
A.	The acts of Lotz constituted constructive fraud as a matter of law, and the trial court erred in concluding that proof of fraudulent intent is a necessary element to recovery for breach of a fiduciary obligation.....	56

B. The defendants are liable to Mid-States for its damages arising through their concerted action	58
(1) The motivation for Lotz' acts.....	59
(2) The trial court erred in finding that the defendants did not engage in a conspiracy to defraud Mid-States.....	60
(3) Even in the absence of proof of any specific prior plan or agreement, Mid-States is entitled to recover from all the defendants by reason of their concerted action in breach of Lotz' fiduciary obligations to Mid-States.....	62
Conclusion	69

ALPHABETICAL LIST OF CASES AND OTHER AUTHORITIES.

Allen v. Suydam, 20 Wendell 321, 32 Am. Dec. 555 (1838)	49
2 American Jurisprudence 220.....	48
American Trust & Banking Co. v. Boone, 102 Ga. 202, 29 S. E. 182, 40 L. R. A. 250 (1897).....	49
Anderson v. Daley, 38 App. Div. 505, 56 N. Y. S. 511 (1899)	62
Anderson v. Thacher, 76 Cal. App. 2d 50, 172 P. 2d 533 (1946)	42, 62
In Re Arbuckle's Estate, 98 Cal. App. 2d 562, 220 P. 2d 950 (1950)	27, 57
Ball v. Paramount Pictures, Inc., 169 F. 2d 317 (C. C. A. 3, 1948)	19, 60
Baltimore Base Ball & Exhibition Co. v. Pickett, 78 Md. 375, 28 A. 279, 22 L. R. A. 690 (1894).....	50
Bishop v. E. A. Strout Realty Agency, Inc., 182 F. 2d 503 (C. A. 4, 1950).....	42
Blazer v. Black, 196 F. 2d 139 (C. A. 10, 1952).....	67
California Civil Code, Secs. 1572, 1573.....	56-57
California Civil Code, Sec. 2230.....	26
California Insurance Code, Sec. 1730.....	23
12 California Jurisprudence, Sec. 34.....	43
Carter Oil Co. v. McQuigg, 112 F. 2d 275 (C. C. A. 7, 1940)	46
Continental Illinois National Bank and Trust Com- pany of Chicago v. Ehrhart, 127 F. 2d 341 (C. C. A. 6, 1942)	47
Crosley Radio Corp. v. Dart, 160 F. 2d 426 (C. C. A. 6, 1947)	47

Duckett v. National Mechanics' Bank of Baltimore, 86 Md. 400, 38 A. 983, 39 L. R. A. 84 (1897).....	55, 64
Equitable Life Assurance Society of the U. S. v. Ire- lan, 123 F. 2d 462 (C. C. A. 9, 1948).....	18
Faultersack v. Clintonville Sales Corporation, 253 Wis. 432, 34 N. W. (2d) 682 (1948).....	26
Garland v. Garland, 165 F. 2d 131 (C. C. A. 10, 1947) .	66
Gibbons v. Brandt, 170 F. 2d 385 (C. C. A. 7, 1947)....	43
Gindorf v. Prince, 189 F. 2d 897 (C. A. 2, 1951).....	17
Hamill v. Maryland Cas. Co., 209 F. 2d 338 (C. A. 10, 1954)	66
Hayter v. Fulmore, 92 Cal. App. 2d 392, 206 P. 2d 1101 (1949)	41
Herron v. Hughes, 25 Cal. 555 (1864).....	56
Kuhn v. Gottfried, 103 Cal. App. 2d 80, 229 P. 2d 137 (1951)	39
Kuhn v. Princess Lida of Thurn & Taxis, 119 F. 2d 704 (C. C. A. 3, 1941).....	18
Machado v. Katcher Meat Co., 108 Cal. App. 2d 1, 237 P. 2d 715 (1951).....	54, 68
Mechem on Agency, Second Ed., Sec. 1207.....	25
Myerson v. New Idea Hosiery Company, 217 Ala. 153, 115 So. 94, 55 A. L. R. 1231 (1927).....	49
Nee v. Main Street Bank, 174 F. 2d 425 (C. A. 8, 1949)	47
Orvis v. Higgins, 180 F. 2d 537 (C. A. 2, 1950) cert. den. 340 U. S. 810, 71 S. Ct. 37.....	17
Proctor v. Norris, 285 Mass. 161, 188 N. E. 625 (1934) .	62
Rattray v. Scudder, 28 Cal. 2d 228, 169 P. 2d 371 (1946)	26, 38
Restatement of the Law of Agency, Secs. 13, 392.....	26
Restatement of the Law of Contracts, Sec. 479.....	43

Restatement of the Law of Torts, Sec. 526.....	41
Restatement of the Law of Torts, Sec. 540.....	42
3 Scott on Trusts, Sec. 326.5.....	62
Smith v. Ayer, 101 U. S. 320 (1880).....	65
Smyth v. Barneson, 181 F. 2d 143 (C. A. 9, 1950).....	18, 46
Transcontinental & W. Air v. Bank of America, Etc., 46 Cal. App. 2d 708, 116 P. 2d 791 (1941).....	50
United States v. United States Gypsum Co., 333 U. S. 364, 68 S. Ct. 525 (1948).....	16
United States National Bank v. Stiller, 216 Cal. 324, 14 P. 2d 78 (1932).....	43
Wells v. Zenz, 83 Cal. App. 137, 256 Pac. 484 (1927) ..	39

In the
United States Court of Appeals
For the Ninth Circuit

No. 14695

**MID-STATES INSURANCE COMPANY, a
corporation, and THE ANGLO CALIFOR-
NIA NATIONAL BANK OF SAN FRAN-
CISCO,**

Appellants,

vs.

**AMERICAN FIDELITY AND CASUALTY
COMPANY, INC., a corporation, AMERI-
CAN PLAN CORPORATION, a corpora-
tion, MARK HART, JOSEPH LOTZ and
RALPH L. SMEAD,**

Appellees.

Appeal from the United
States District Court for
the Northern District of
California, Southern Di-
vision.

—
Honorable
Michael J. Roche,
Judge Presiding.

**BRIEF AND ARGUMENT FOR APPELLANT
MID-STATES INSURANCE COMPANY.**

Jurisdiction.

This is an action brought by Mid-States Insurance Company, an Illinois corporation ("Mid-States"), against (1) American Fidelity and Casualty Company, Inc., a Virginia corporation, licensed to do business in the State of California ("American Fidelity"); (2) The American Plan Corporation, a New York corporation doing business in California ("American Plan"), the manager of the United States automobile physical damage insurance business of American Fidelity; (3) Mark Hart, a resident of the State

of New York, President of American Plan; (4) Joseph Lotz, a resident of California; (5) Ralph L. Smead, a resident of California; (6) L. Sudekum and H. Arthur Will (sued as John Will). The defendants L. Sudekum and John Will were not served with process and accordingly were not parties to the action. The case was tried to the court without a jury and the court entered judgment for the defendants (R. 141). Appellant Mid-States appeals from that judgment.

Plaintiff's complaint (R. 8-19) charges that the defendants conspired to defraud Mid-States and that this conspiracy was actually carried out in breach of the fiduciary obligations of Lotz to Mid-States. The defendant Lotz was the general agent of Mid-States for the State of California and the general agent of American Fidelity for the State of California with power to accept proposals for insurance covering automobile physical damage and to adjust losses for each of the companies for the respective periods alleged in the complaint (R. 8, 9, 10, 36 and 37). The complaint prays for damages in the amount of \$297,097.91 and for \$50,000.00 as exemplary and punitive damages (R. 18). Each of the defendants filed answers denying the conspiracy to defraud or the alleged acts in concert in breach of the defendant Lotz's fiduciary duty as agent of Mid-States (R. 34-42).

Three counterclaims were filed by American Fidelity, one by American Plan and two by Lotz. The first counterclaim filed by Lotz was amended by leave of court, and the amended counterclaim was thereafter dismissed without leave to further amend, and an appeal from that order was dismissed by this court in case No. 13756. Two of the counterclaims filed by American Fidelity and the counterclaim filed by American Plan were abandoned prior to the commencement of the trial and no proof support-

ing the third counterclaim filed by American Fidelity or the second counterclaim filed by Lotz was offered at the trial and, accordingly, judgment was entered in favor of the plaintiff on all of the counterclaims, none of which is involved in this appeal.

The Anglo California National Bank ("Anglo") filed a complaint in intervention by permission of the court and appeared as a third party plaintiff (R. 50-64). During the period of the acts alleged in the Mid-States complaint the defendant Lotz endorsed and deposited in his account certain checks which were delivered to him but which were drawn to the order of Mid-States. Mid-States sued Anglo in a separate action in the United States District Court for the Northern District of California, Southern Division, Case No. 31311 (R. 3-7), on the theory that Lotz was not authorized to endorse checks payable to Mid-States, and that suit was settled after trial but before judgment by the payment of \$37,500.00 by Anglo to Mid-States. Anglo seeks recovery of this amount from the defendants on the alternative grounds (a) that the endorsement of checks by Lotz was an act in furtherance of the fraudulent conspiracy upon which the principal action is based, or (b) by way of subrogation should Mid-States recover in the principal action (R. 98). Judgment was entered against Anglo and in favor of the defendants and Anglo has appealed from that judgment. Mid-States has no interest in Anglo's claim against the defendants for recovery of the amount paid by Anglo to Mid-States in settlement of the latter's suit against it, or in Anglo's appeal in this case.

The jurisdiction of the United States District Court is founded upon Title 28, U. S. C. A., Section 1332. The United States Court of Appeals for the Ninth Circuit has jurisdiction of this appeal under Title 28, U. S. C. A., Sections 1291 and 1293.

STATEMENT OF THE CASE.

Mid-States' complaint alleged that the defendants, by means of various acts and transactions in concert, engaged or participated in a conspiracy to defraud plaintiff and in the breach or violation of Lotz's fiduciary duty as agent of Mid-States, and that as a direct result thereof Mid-States suffered damages. The complaint prayed for a judgment in the amount of \$297,097.91, plus exemplary and punitive damages in the amount of \$50,000.00.

Both Mid-States and American Fidelity are insurance companies engaged in writing automobile physical damage insurance. American Plan is the United States Manager of the automobile physical damage insurance business of American Fidelity. Both Mid-States and American Fidelity during the period involved in this action were licensed to and did transact business in the State of California.

On May 15, 1947, Mid-States appointed Lotz its general agent in California (Plaintiff's Exhibit 1, R. 176-177, 621) and he continued as such general agent until January 21, 1952 (Plaintiff's Ex. 33). American Fidelity appointed Lotz its general agent for the State of California for like insurance purposes on November 27, 1950 (R. 38). Lotz was authorized with respect to each company to collect premiums on insurance written by him for such company and to adjust losses subject to approval of the company (R. 38).

Lotz' agencies with both Mid-States and American Fidelity were carried out under the so-called "retrospective plan". Under this plan Lotz became indebted to the company for which he wrote insurance for the entire amount of the premium but had a so-called credit period within

which to pay it (R. 177-178). Lotz' first contract with Mid-States, which was dated May 15, 1947, called for a credit period of sixty days (R. 316). This was increased to seventy-five days for the period from May 1, 1951 to September 1, 1951 by a letter from Mid-States (Def.'s Exhibit C), and then reduced by the contract dated September 1, 1951, to sixty days (Plaintiff's Exhibit 2, R. 317). Lotz' contract with American Fidelity provided for a credit period of 75 days within which to pay the premiums on insurance written for it (R. 709, 760). Under his contract with Mid-States Lotz, subject to the approval of Mid-States, had the right to appoint sub-agents who were entitled to an immediate commission upon the premiums collected by them. Under both agency arrangements (except as is hereinafter noted) Lotz was not entitled to receive any commission for himself or any sub-agent until after the policy had expired, his commission being dependent upon the losses incurred under the policy (R. 101-102). Mid-States had a so-called "retention" of twenty percent (20%) under its first contract with Lotz, which was subsequently reduced to fifteen percent (15%), and it had a retention of fourteen percent (14%) under the contract of September 1, 1951 (R. 179-181, 316, Plaintiff's Exhibits 1 and 2, Def.'s Exhibit C). At the expiration of the policies any balance after deducting the losses and retention would be paid to Lotz. Under Lotz' contract of September 1, 1951 with Mid-States, he was permitted to retain fifteen percent (15%) of the premiums subject to later adjustment for losses and was required initially to remit only the balance to Mid-States (Plaintiff's Exhibit 2). Under his contract with American Fidelity he was guaranteed a commission of twenty percent (20%) regardless of losses (R. 763).

The agency contract of September 1, 1951 with Mid-States provided in part:

“* * * All premiums received by the Agent shall be held by such Agent as trustee for the Company.

“* * * The keeping of an account with the agent on the company's books, as a creditor and debtor account, is declared a record memorandum of business transacted, and neither such keeping of account, nor alteration in compensation rate nor failure to enforce prompt remittance or compromise or settlement or declaration of balance of account, shall be held to waive the understanding that the premiums collected by the agent are trust funds. * * *”

During the period from May, 1947, to April, 1951, Lotz procured a substantial amount of insurance business for Mid-States in California (R. 188). During that period Lotz paid Mid-States all moneys due it although he was delinquent at various times for periods of ten days to two weeks (R. 188-189, 210, 308-314, 345-350, Def's Exhibits A and F). The record is devoid of any evidence of any wrongful acts on the part of Lotz during that period.

Following Lotz' appointment as general agent in California for American Fidelity, he placed most of the insurance which he procured in that company until August, 1951, and the amount which he wrote for Mid-States constantly decreased so that by August, 1951, Lotz was indebted to American Fidelity in the amount of approximately \$240,000.00 and was indebted to Mid-States in the amount of approximately \$30,000.00 (R. 355, 732, Plaintiff's Exhibit 23, pp. 13, 19). Lotz wrote almost no insurance for Mid-States in April, none at all in May, approximately \$32,000.00 in June, and none at all in July, 1951 (R. 344-345, Plaintiff's Exhibit 23, p. 13).

The complaint charged that on August 13, 1951, the defendants entered into a conspiracy to defraud Mid-States, and that such conspiracy was carried out by acts of the defendants in concert until on or about November 1, 1951, as a result of which the indebtedness owing by Lotz to

American Fidelity on August 1, 1951 was paid in full and the indebtedness owing by Lotz to Mid-States on that date was increased so that, after effecting collections and cancellations, Mid-States suffered losses in the amount of \$297,097.91 (R. 10-18). Mid-States further alleges that at the time of the acts complained of Lotz was insolvent and that this fact was known to the defendants (R. 10).

The Acts Complained Of.

In August, 1951, Lotz was indebted to American Fidelity in the amount of approximately Sixty-six Hundred Dollars (\$6,600.00) for commissions on a reinsurance transaction and, when he failed to pay the money, Hart became concerned because Lotz also owed a May balance on account of premiums of approximately Sixty-six Thousand Dollars (\$66,000.00) that was to become due on August 15th. Hart therefore asked him to come to New York for a meeting (R. 760, 761). Prior to that time a check in the amount of \$53,301.00 that had been issued by Lotz to American Fidelity had been returned unpaid (R. 761). Lotz and Smead, pursuant to Hart's request, went to New York, arriving there on August 13, 1951. There is a dispute in the evidence as to the conversations that occurred at this meeting. Smead and Lotz, in statements signed by them between December 6 and December 18, 1951 (Plaintiff's Exhibits 11, 12, 13, 22 and 31, R. 253-263, 537, 1067, 653-654) outlined in detail what they claim was the conversation at that time. Hart and Feller, attorney for American Fidelity, denied that much of this conversation took place. Hart admitted, however, that he discussed with Smead and Lotz the latter's indebtedness to American Fidelity in the amount of approximately \$240,000.00 for premiums on business written for it (R. 762). Hart testified that he was interested in the fifteen percent

(15%) prepaid commission which Lotz was to have under his new contract with Mid-States and any commission income that might accrue to him on what is hereafter described as the Public Service Rewrite (R. 775).

It is undisputed that Lotz immediately proceeded to Chicago to negotiate a new and more favorable agency contract with Mid-States, and that Smead returned to Oakland to proceed with collections from sub-agents. On August 20, 1951, a week after the New York meeting, Hart and Feller flew to Oakland for further conferences with Lotz and Smead. While in Oakland, Feller endeavored to obtain a bank loan of \$50,000.00 for Lotz from the Central Bank. During the course of these negotiations Feller conferred with various officers of the bank and a number of legal documents were drafted to evidence a collateral arrangement in respect of commissions earned or to be earned by Lotz (R. 952-954). The negotiations were unsuccessful and the loan was never made. It is also undisputed that Lotz was insolvent on August 1, 1951 and that his insolvency continued at all times thereafter (Plaintiff's Exhibits 23, 25, 26, 27, R. 606-609, 615-616).

On August 22, while in Oakland, Lotz entered into a written agreement with American Plan and American Fidelity (Plaintiff's Exhibit 17) under which (a) Lotz' agency for American Fidelity was terminated and as a result Lotz could write no more policies for American Fidelity; (b) the time within which payment of his indebtedness to American Fidelity in the amount of \$240,000.00 was to be made was accelerated so that the entire amount was to be paid by September 15, 1951, although under his 75 day contract period the bulk of that indebtedness would not be due and payable for some time thereafter; (c) Lotz' financial control of his business was taken from him; (d) Lotz' office manager, Smead, was employed by American Plan as its representative with supreme authority

over the financial end of Lotz' agency. Concurrently with the execution of Plaintiff's Exhibit 17, Hart gave Smead a letter which was placed in a sealed envelope under which Smead was promised a bonus of \$1,000.00 if he saw to it that American Fidelity was paid in full by September 15, 1951, a period of approximately three weeks (Plaintiff's Exhibit 18; R. 465). Smead later called Hart on the telephone and advised him that he would have no part of accepting the promised bonus (R. 779). A subsequent audit of Lotz' accounts showed that at August 1, 1951, Lotz' total receivables on account of premiums on insurance written by him for American Fidelity were \$61,612.01 (Plaintiff's Exhibit 23, p. 13).

There is no dispute in the evidence that between August 13 and November 10, 1951, a period of less than three months, Lotz' indebtedness to American Fidelity in the amount of \$240,000.00 had been totally liquidated and his indebtedness to Mid-States had been increased from \$30,000.00 to approximately \$418,000.00. This result was effected in several ways:

(1) during that period Lotz collected premiums on account of American Fidelity's business in a total amount of a little over \$86,000.00, and during the same period American Fidelity received in cash a total of \$167,000.00, a sum almost double the collection (Plaintiff's Exhibit 23, p. 13, R. 599). Thus, payment of some \$81,000.00 more than was collected on account of American Fidelity's business was paid to it by Lotz. During that same period Lotz collected approximately \$199,000.00 on account of Mid-States' business and paid it only \$47,000.00, approximately \$152,000.00 less than he received (Plaintiff's Exhibit 23, p. 13; R. 598-599). During that same period \$434,391.00 of insurance was written by Lotz for Mid-States (R. 598), and only \$32,807.68 (net after cancellations) was written for American Fidelity. Thus, American

Fidelity and American Plan, well knowing Lotz' financial position, and with their employee Smead in full financial control of Lotz' agency, knowingly received \$81,000.00 more than Lotz collected on their business;

(2) constant and unceasing pressure was put upon Smead, their employee, by American Fidelity and American Plan, by teletype and telephone for immediate payment (Plaintiff's Exhibit 29; R. 803-814). Pursuant thereto, Lotz wrote large amounts of insurance in Mid-States, while insolvent, paying large advance commissions to sub-agents for the purpose of diverting to American Fidelity premiums received on such business (Plaintiff's Exhibit 23). In most instances, the president or treasurer of American Fidelity or American Plan had actual knowledge of the acts of Smead and Lotz and the sources of the payments and, specifically, of the transfer of a substantial block of insurance policies previously written by the Public Service Insurance Company and rewritten by Lotz for Mid-States (hereinafter referred to as the "Public Service Rewrite");

(3) the Public Service Rewrite involved the cancellation by that company of a number of its own policies representing gross premiums in the amount of \$150,000.00. These policies were rewritten in Mid-States for their unexpired terms after Public Service had received the full premiums from the respective assureds. As a result of the rewrite, Public Service was relieved of all remaining liability under the policies and it was accordingly necessary that it pay over to Mid-States, the assuming company, that portion of the premiums representing the unexpired terms of the policies. Lotz paid the Russell and Bond Agency a commission of twenty-five percent (25%) of the total premium balance (R. 848-849, 869), thus receiving only seventy-five percent (75%) of the amount of such premiums. The Public Service checks were made payable

to Mid-States but Lotz placed the payee's endorsement thereon and deposited the funds in his own trustee account. Of a total of approximately \$96,000.00 so received by Lotz, approximately \$90,000.00 was diverted and paid to American Fidelity (R. 603-606, 637-638; Plaintiff's Exhibit 23, p. 21 and Exhibit 24). Hart knew the checks had been made payable to Mid-States, that payment had been stopped by Public Service on its first check, which had been made payable to Lotz, and that Public Service then issued a new check payable to the order of Mid-States in substitution therefor (R. 862-863). Hart also knew that all or a substantial portion of the proceeds of these checks were being paid to American Fidelity out of Lotz' account (R. 805; Plaintiff's Exhibit 29). As a result of the Rewrite Lotz immediately became indebted to Mid-States for the premiums, less his fifteen percent (15%) advance commission, and the liabilities on the policies were transferred to Mid-States;

(4) on or about October 31, 1951, Lotz' indebtedness to American Fidelity had been reduced by these various transactions to approximately \$61,000.00 (Finding III, R. 118). Hart negotiated with Lotz through Smead for the transfer to Mid-States of a block of insurance policies formerly written by Lotz for American Fidelity and on which substantially all of the premiums had been paid to Lotz (R. 663, 892). The amount of premiums involved in this rewrite (hereinafter called the "American Fidelity Rewrite") aggregated more than the unpaid balance then due American Fidelity (Plaintiff's Exhibit 23, p. 13; R. 597). Before effecting the rewrite, Hart telephoned Hatfield for the ostensible purpose of obtaining Mid-States' approval to the rewrite. The telephone conversation, initiated and recorded by Hart, was transcribed and introduced in evidence (Plaintiff's Exhibit 5). The original recording was also introduced in evidence (Defendant's

Exhibit B.) In the course of that conversation, Hart made certain misrepresentations to Hatfield which are hereafter discussed in detail in the argument. Following that telephone conversation, the rewrite was effected, as a result of which liability to the assureds on the policies was transferred to Mid-States, the unpaid balance due from Lotz to American Fidelity was satisfied, and Lotz became indebted to Mid-States for the unearned premiums and was relieved of his obligation to American Fidelity in a like amount.

On November 23, 1951, Hatfield, Vice-President of Mid-States, after receiving a report from Oldberg, Vice-President of Mid-States in Los Angeles, who had visited Lotz' office, came to Oakland from Chicago and for the first time discovered certain of the facts regarding the acts and transactions of the defendants from August 13, 1951. Upon further investigation Lotz told Hatfield the details of these acts and transactions, following which the statements of Smead and Lotz (Plaintiffs' Exhibits 11, 12, 13, 22 and 31) were obtained. On November 27, 1951, Lotz with the prior approval and advice of his counsel, wrote Mid-States stating that he had a plan for continuing in business and ultimately paying his obligations to Mid-States and requesting the latter to approve the same (Plaintiff's Exhibit 6). Mid-States insisted upon and obtained from Lotz an assignment of any commissions which might be due him from American Fidelity, together with an assignment of the assets of his business, the right of access to his books, records and mail (Plaintiff's Exhibits 7, 8, 9, 36), and also entered into an agreement to lease a portion of his office space and his office furniture and equipment (Plaintiffs' Exhibit 14; R. 271-273, 1036-1037). Mid-States then placed its employee Kledzik in the agency for the purpose of analyzing the records and policies written, effecting such collections as were possible, cancelling policies, handling losses and generally performing such details as were nec-

essary to reduce Lotz' indebtedness to it. After learning the facts, Mid-States rejected the arrangement proposed by Lotz in Plaintiff's Exhibit 6. Mid-States continued the foregoing liquidation program until some time in 1952, at which time all of Lotz' office fixtures and equipment were returned to him by delivery of the same to his then attorney, Dusky, at Lotz' request (Plaintiff's Exhibit 32; R. 730). Mid-States' recovery efforts were ultimately successful in reducing Lotz' indebtedness to it substantially. As a result of these efforts and the application by it on Lotz' account of the net proceeds of the settlement made in its action against Anglo for the alleged wrongful payment to Lotz of the Public Service checks made payable to the order of Mid-States, the unpaid balance of Lotz' indebtedness to Mid-States at the time of the trial had been reduced to \$281,746.96 (Plaintiff's Exhibit 15, R. 601-602). There is no dispute in the evidence that Lotz is indebted to Mid-States in that amount (Finding V, R. 120; see also the statements of Lotz' attorney in his closing argument, R. 1219-1220).

Following the entry of the Findings of Fact and Conclusions of Law by the trial court (R. 114-140), the court entered judgment in favor of the defendants on plaintiffs' complaint and judgment against the defendants, American Fidelity, American Plan and Lotz on all of their respective counterclaims (R. 141-142). This appeal is not concerned with the judgment order on the counterclaims.

Mid-States thereafter and within the time permitted filed Motions for a New Trial, for Modification of the Findings of Fact and Conclusions of Law, and to Alter and Amend the Judgment (R. 142-156). These motions were denied by the trial court (R. 157).

ERRORS RELIED UPON.

Seventeen statements of points upon which appellant relies on this appeal were filed (R. 159-162), which may for the sake of clarity be placed in the following categories:

(a) Erroneous Conclusions of Law.

1. The court erred in entering judgment that plaintiff take nothing by its complaint.

2. The court erred in failing to find that Lotz was indebted to Mid-States in the sum of \$281,746.96 and to enter judgment in favor of the plaintiff against Lotz.

3. The court erred (a) in finding that Lotz was not guilty of concealment of facts which he was under duty to disclose to Mid-States, and that Mid-States did not rely on any non-disclosures by Lotz and (b) in refusing to find that Lotz had violated his fiduciary duties as agent of Mid-States and that the remaining defendants had participated in such breach.

4. The court erred in finding that the defendants did not engage in a conspiracy to defraud plaintiff.

5. The court erred in holding that Mid-States suffered no loss due to any fraud or conspiracy of the defendants.

6. The court erred in denying plaintiffs' motion for a new trial, for modification of Findings of Fact and Conclusions of Law and to alter and amend the judgment.

(b) Erroneous Findings of Fact.

1. The court erred in finding that subsequent to the new contract of September 1, 1951 between Lotz and Mid-States the latter permitted Lotz to use the premiums collected by him for Mid-States to pay his operating expenses, personal drawings, and sub-agents'

commissions and that the funds collected by Lotz for Mid-States constituted a debt in that amount rather than trust funds.

2. The court erred in finding that the statements made by Hart to Hatfield on or about November 1, 1951, in connection with the proposed rewrite by Mid-States of insurance formerly written by Lotz for American Fidelity were not made with intent to deceive or defraud; that said statements were not relied upon by Mid-States; that no fraud or deceit was practiced by American Fidelity or American Plan with respect to such transactions, and that the same was not part of any plan by the defendants to defraud Mid-States.

3. The court erred in finding that the American Fidelity rewrite was not effected for the purpose of enabling American Fidelity to reduce the amount of otherwise uncollectible indebtedness due it from Lotz at the expense of Mid-States.

4. The court erred (a) in finding that the defendants did not know prior to December, 1951, of Lotz' insolvency or that Lotz would be unable to meet his obligations to Mid-States and (b) in failing to find that Lotz was insolvent on or after August 1, 1951, and that the defendants at all times thereafter believed him to be insolvent.

5. The court erred (a) in finding that by the agreement dated August 22, 1951, among American Fidelity, American Plan and Lotz, Smead was given control over the finances of the Lotz agency only as they pertained to the payment of the obligation owed by Lotz to American Fidelity and (b) in failing to find that Smead was the agent of American Fidelity and American Plan and that, while acting as such agent he wrongfully diverted to American Fidelity and American Plan funds belonging to Mid-States.

ARGUMENT.

I.

**THE FINDINGS OF FACT AND CONCLUSIONS OF LAW
OF THE TRIAL COURT SPECIFIED IN THE ERRORS
RELIED UPON ARE CLEARLY ERRONEOUS.**

A finding is clearly erroneous when although there is evidence to support it, the reviewing court on the entire evidence is left with the definite and firm conviction that a mistake has been committed.

A number of the findings of the trial court relied upon as errors are determinations of mixed questions of law and fact and it is submitted that these findings resulted from erroneous inferences or conclusions drawn from documents or undisputed facts or from an erroneous view of the law.

With respect to the scope of Appellate review, the mandate of Rule 52(a) of the Federal Rules of Civil Procedure is set forth and discussed in *United States v. United States Gypsum Co.*, 333 U. S. 364, at 394-5, 68 S. Ct. 525 (1948) as follows:

“Insofar as this finding and others to which we shall refer are inferences drawn from documents or undisputed facts, * * *, Rule 52(a) of the Rules of Civil Procedure is applicable. * * * Since judicial review of findings of trial courts does not have the statutory or constitutional limitations on judicial review of findings by administrative agencies or by a jury, this court may reverse findings of fact by the trial court which are ‘clearly erroneous’. The practice in equity prior to the present Rules of Civil Procedure was that findings of the trial court, when dependent upon oral testimony where the candor and credibility of the witnesses would best be judged,

had great weight with the Appellate Court. The findings were never conclusive, however. A finding is 'clearly erroneous' when although there is evidence to support it, the reviewing court on the entire evidence is left with the definite and firm conviction that a mistake has been committed."

In *Orvis v. Higgins*, 180 F. 2d 537 (C. A. 2, 1950) cert. den. 340 U. S. 810, 71 S. Ct. 37, the Court of Appeals reversed the finding of the trial court that certain trusts made by taxpayers were independent and not reciprocal trusts. The majority opinion stated, at page 539,

"Where a trial judge sits without a jury, the rule varies with the character of the evidence: (a) If he decides a fact issue on written evidence alone, we are as able as he to determine credibility, and so we may disregard his finding. (b) Where the evidence is partly oral and the balance is written or deals with undisputed facts, then we may ignore the trial judge's finding and substitute our own, (1) if the written evidence or some undisputed fact renders the credibility of the oral testimony extremely doubtful, or (2) if the trial judge's finding must rest exclusively on the written evidence or the undisputed facts, so that his evaluation of credibility has no significance.
* * *,

Gindorf v. Prince, 189 F. 2d 897 (C. A. 2, 1951) was an action by the plaintiff for compensation for personal services as a financial advisor. The trial court entered judgment for the plaintiff and the Court of Appeals reversed and dismissed the suit on the ground that the evidence required a denial of recovery and that accordingly the findings of the District Court were clearly erroneous. The court said:

"While certain issues of law do arise, the fundamental question is whether, upon the testimony adduced, the findings of the court in the plaintiff's favor are to be held 'clearly erroneous' under Fed. R. Civ. Proc. rule 52(a) 28 U. S. C. A. We are constrained

to decide that they are and that the judgment must be reversed for dismissal of the action.

“We are under no illusion as to the serious concern, under our own decisions as well as others, with which we must approach the step of reversing a trial judge on issues so dependent upon veracity. Nevertheless, our ultimate responsibility is clear under the rule itself and has been restated by the Supreme Court, notably in *United States v. United States Gypsum Co.*, 333 U. S. 364, 395, 68 S. Ct. 525, 542, 92 L. ed. 746, where the Court went on to say: ‘A finding is “clearly erroneous” when although there is evidence to support it, the reviewing court on the entire evidence is left with the definite and firm conviction that a mistake has been committed.’ This court has that definite and firm conviction.”

In *Equitable Life Assurance Society of the U. S. v. Irelan*, 123 F. 2d 462 (C. C. A. 9, 1948), and in *Smyth v. Barneson*, 181 F. 2d 143 (C. A. 9, 1950) this court confirmed this rule, notwithstanding that in the latter case it did not reverse the trial court.

It is also well established that the rule that fact findings supported by evidence and not clearly erroneous must be accepted on appeal does not entrench with like finality the inferences or conclusions drawn by the trial court from its fact findings. Thus, in *Kuhn v. Princess Lida of Thurn & Taxis*, 119 F. 2d 704 (C. C. A. 3, 1941), the court said, at pages 705-6:

“The rule does not operate, however, to entrench with like finality the inferences or conclusions drawn by the trial court from its fact findings. And so, while accepting the facts competently found by the trial court as correct, an appellate court remains free to draw the ultimate inferences and conclusions which, in its opinion, the findings reasonably induce. * * * An incorrect conclusion by a trial court qualifies as a ‘clearly erroneous’ finding, for the correction whereof on appeal rule 52(a) specifically provides.”

This case was followed and quoted with approval in *Ball v. Paramount Pictures, Inc.*, 169 F. 2d 317 (C. C. A. 3, 1948).

Appellant frankly admits that the oral testimony of the witnesses for the plaintiff and the defendants is in conflict in a number of instances. It is submitted, however, that this conflict does not in any way affect the ultimate findings of fact and inferences which must necessarily be drawn from the documentary evidence and the admissions of the witnesses for the defendants.

Lotz' Admitted Indebtedness.

The court's findings and conclusions of law should be reviewed against the background of Lotz' admitted indebtedness to Mid-States in the amount of \$281,746.96. The court found (Finding V, R. 120) that Mid-States' loss on the agency amounted to that sum but refused to enter judgment against Lotz therefor. Counsel for Lotz in his closing argument stated that "Joe knows that he owes Mid-States a lot of money today. He admits this. He owes them hundreds of thousands of dollars * * *." (R. 1219-20). There is no dispute in the record regarding the amount, the detailed breakdown of which is contained in Plaintiff's Exhibit 15, or Lotz' liability to Mid-States therefor. Notwithstanding this uncontroverted evidence, counsel's admission and the court's own finding, it failed to enter judgment against Lotz, but, on the contrary, entered judgment against Mid-States and in favor of Lotz as well as the remaining defendants. The trial court subsequently refused to amend its judgment upon timely motion to amend made by Mid-States pursuant to Rule 59 of the Federal Rules of Civil Procedure (R. 142-146, 157). That this action of the trial court, if allowed to stand, will result in a windfall to Lotz and, accordingly, in a gross miscarriage of justice hardly requires

further discussion in this brief. It obviously reflects the court's misconception of the entire litigation and the further erroneous conclusions which resulted therefrom.

Lotz' Fiduciary Relationship to Mid-States.

It is submitted that the court erred (a) in finding that Lotz was not guilty of concealment of any fact which he was under a duty to disclose to Mid-States and that Mid-States did not rely on any non-disclosure by Lotz, and (b) in refusing to find that Lotz had violated his fiduciary duties as agent for Mid-States and that the remaining defendants had participated in such breach. The trial court made certain subsidiary findings which led to these erroneous conclusions and which are hereafter discussed.

The court concluded that Mid-States' own conduct was to a great extent responsible for its loss and for the creation and continuation of those activities of the Lotz agency which caused such loss (Finding VII, R. 125); that a debtor-creditor relationship existed *with respect to funds representing premiums collected by Lotz*, and that he could use such funds to pay his obligations "provided that no fraud or breach of fiduciary obligations was involved" (R. 105). However, the court later concluded that "Lotz was an independent contractor *as to the operation of the business * * **" (Italics supplied.)

The court's opinion and findings deal at length with the history of the Lotz agency and the conduct of Lotz and Mid-States with respect thereto. The trial court's conclusion regarding the legal relationship between Lotz and Mid-States is based upon its findings regarding the use of premium funds by Lotz, his accounting methods, his tardiness in payments to Mid-States from time to time, and lack of supervision or examination of Lotz' accounts

by Mid-States prior to the period beginning with August 13, 1951. It is submitted that the undisputed evidence in the case does not support the trial court's conclusions regarding the legal relationship between Lotz and Mid-States.

A great deal of emphasis was placed by the court on the testimony that (a) Lotz was without capital when he first became Mid-States' general agent in California, (b) that he used premium funds prior to September 1, 1951 to pay operating expenses and, in some instances, commissions to sub-agents, (c) that Mid-States did not audit his books of account until after the events complained of in this action and did not supervise the operations of his agency, except as to underwriting procedures, (d) that Lotz' combined expenses and sub-agents' commissions on the business written for Mid-States amounted to over 40%, Mid-States' retained premium was 14%, and Lotz' loss ratio was between 64.65% and 68.51%, and that Mid-States urged him to write more business for it (Finding VII, R. 124-125). Throughout the court's opinion and in its findings it completely disregarded the fiduciary relationship between Lotz and Mid-States with respect to all aspects of his agency other than the accounting for premiums collected. It is submitted that the undisputed evidence clearly refutes these findings and vitiates the conclusions of the trial court.

The record shows that Lotz started in the life insurance business in 1923 in Sioux City, Iowa, as a direct agent and that he had been engaged in the casualty insurance business in California since 1944 (R. 1041); that he first became general agent for Mid-States in May, 1947, and continued to act for it in that capacity until the termination of his agency in January, 1952; that he wrote principally fire and casualty insurance (R. 621, Plaintiff's Exhibits 1 and 2, R. 415); and that he became general

agent for American Fidelity in 1950 and continued to act as such until the termination of such agency on August 22, 1951 (Plaintiff's Exhibits 17 and 30, R. 456-460, 639).

Lotz was sometimes a week or two late in making his payments to Mid-States (R. 685), but all amounts due it were paid in full during the entire four years of his agency prior to August, 1951 (R. 706). He never told Cass (Executive Vice-President of Mid-States until the latter part of 1950) or Hatfield (General Manager of Mid-States following the termination of Cass' employment) of any "invasions" of funds in his agency accounts (R. 688). Cass visited the agency from time to time and Lotz made his records available to Cass (R. 690). Mid-States was licensed in 28 States and Hatfield tried to call on its agents at least twice a year (R. 183). Lotz' business increased in 1948 and 1949 and was getting better. In 1948 Mid-States paid Lotz \$24,117.00 in cash as earned commissions; in 1949, \$48,862.78, in 1950, \$70,685.02, and in 1951, he received by way of cash and credit to his account \$31,704.00 (R. 463, 706). In 1950, Lotz' average monthly premium volume was between \$14,000 and \$15,000 a month (R. 188).

It is significant that during that entire period Lotz never defaulted in any of his obligations to Mid-States, and that the record is devoid of any evidence of any wrongful conduct on Lotz' part during those years. It is further significant that from January, 1951 to August, 1951, by far the greatest portion of the business written by Lotz was for American Fidelity (R. 593, Plaintiff's Exhibit 23, page 13). On August 13, 1951 Lotz owed Mid-States approximately \$30,000 on business written for it and he owed American Fidelity approximately \$240,000 on business written for it (R. 118, Finding III; R. 355, 732, 762-763). He wrote almost no insurance for Mid-States in April, none in May, approximately \$32,000 in

June and none in July, 1951. Under Lotz' first contract with Mid-States he was given a credit period of 60 days, which was later increased to 75 days for a period of two months, and then reduced to 60 days under the contract of September 1, 1951 (R. 316-317, Plaintiff's Exhibit 1, Def's. Exhibit C).

Prior to Lotz' appointment as general agent for American Fidelity, the latter obtained a credit report on Lotz, and Mr. Sudekum, Executive Vice-President of American Fidelity, went to Oakland in April, 1951 and made inquiry about the operations of Lotz' agency, as the result of which he recommended to Mr. Markell, Vice-President of American Fidelity, that a 75 day credit period under his agency contract be given Lotz by American Fidelity (R. 824; Plaintiff's Exhibit 34, R. 828). Cass, who at that time was no longer employed by Mid-States, but was acting as a special representative for American Fidelity in the appointment of agents for it, arranged Lotz' appointment as agent for American Fidelity (R. 891-892). Hart admitted that American Fidelity knew that Lotz had established an enviable record with Mid-States (R. 828-829).

Despite the fact that the admitted relationship between Mid-States and Lotz was that of principal and agent, and the undisputed evidence of Lotz' faithful performance of his duties prior to August, 1951, the court found that the course of dealing between the parties disclosed a method of handling the Lotz agency which was contrary to a trust relationship (R. 113). It is submitted that this inference or conclusion from the evidence in the record is clearly erroneous.

Lotz' duty to Mid-States with respect to premiums collected on insurance written for Mid-States is specifically covered by Section 1730 of the California Insurance Code, which provides that:

“All funds received by any person acting as an insurance agent, broker, or solicitor, life agent of any

type, life analyst, surplus line broker, special lines surplus line broker, motor club agent or bail agent or solicitor, as premium or return premium on or under any policy of insurance or undertaking of bail, are received and held by such person in his fiduciary capacity. Any such person who diverts or appropriates such fiduciary funds to his own use is guilty of theft and punishable for theft as provided by law."

In addition, the specific contractual arrangement between Lotz and Mid-States as created and evidenced by the agency agreement of September 1, 1951 (Plaintiff's Exhibit 2, R. 415) provides that all premiums collected by Lotz on insurance written for Mid-States constituted trust funds. The previous agreements between Lotz and Mid-States did not so provide. Obviously the September 1, 1951 agreement was intended to, and, as a matter of law did, change any previous arrangement between them with respect to the treatment of premiums collected and therefore, as a matter of law, no course of conduct which existed prior to the agreement of September 1, 1951 can be held to vary the specific terms of the later agreement. The court erred in applying to the relationship of the parties with respect to premiums collected by the agent after September 1, 1951, the course of conduct which existed prior to that date. There is no evidence whatsoever in the record to indicate that Mid-States' course of conduct subsequent to September 1, 1951 was in any way at variance with the statutory provisions and the specific provisions of the agency agreement of September 1, 1951 that all premiums collected by Lotz constituted trust funds. Accordingly, the findings of the court that Mid-States' conduct was largely responsible for the losses incurred by it because of Lotz' diversion of premiums collected on Mid-States' business to American Fidelity is clearly erroneous as a matter of law and does not depend in any respect upon the court's opinion as to the credibility of any witness.

In any event, the relationship between Lotz and Mid-States with respect to premiums collected certainly could not, and did not, abrogate the fiduciary relationship of Lotz to Mid-States in respect of all other aspects of his agency.

It is well settled that an agent is a fiduciary as to his principal with respect to matters within the scope of his agency. The fiduciary duties of an agent demand the same obligations of undivided service and loyalty that are imposed upon a trustee in favor of his beneficiary. The dominant characteristic of a fiduciary relationship is the duty of the fiduciary to act solely in the interests of the person with whom he occupies such a relationship. The agent must make a full disclosure to his principal of all the facts surrounding any transaction within his agency that might affect the decision of his principal, and owes a duty to deal fairly with his principal.

This rule is stated in full in *Mechem on Agency*, Second Ed., Sec. 1207 as follows:

“It is always the duty of an agent * * * to fully inform the principal of all facts relating to the subject matter of the agency which come to the knowledge of the agent, and which it is material for the principal to know for the protection of his interests. * * * As has been already seen, it is absolutely essential, when an agent undertakes to sustain dealing with his own principal, that it shall appear that the agent frankly and freely gave to his principal full information respecting, not only the agent’s relation to the contract, but also, the various conditions respecting time, value, situations, condition and the like, which may fairly be deemed to be material in determining upon the desirability of entering into the contract. But even where the agent is not personally interested in the contract, his duty to give the principal full information of all the material facts relating to the transaction, which are within his knowledge, still exists. A

failure to perform this duty, while not necessarily rendering transactions with third persons voidable, as it would do if the agent were himself personally interested, will still make the agent liable to the principal for losses which he has proximately sustained thereby. * * *

California Civil Code, Sec. 2230.

Restatement of the Law of Agency, Secs. 13, 392.

In *Rattray v. Scudder*, 28 Cal. 2d 228, 169 P. 2d 371 (1946), the court reversed an order of the trial court which had issued a writ of mandamus commanding the defendant to set aside an order revoking plaintiff's license as a real estate broker. The court said:

"The law of California imposed on * * * the real estate agent, the same obligation of undivided service and loyalty that it imposes on a trustee in favor of his beneficiary. Violation of his trust is subject to the same punitive consequences that are provided for a disloyal or recreant trustee. *King v. Wise*, 43 Cal. 628. *Langford v. Thomas*, 200 Cal. 192, 196, 252 P. 602, 603. Such an agent is charged with the duty of fullest disclosure of all material facts concerning the transaction that might affect the principal's decision. Civ. Code, Sec. 2230; *Langford v. Thomas*, *supra*, 200 Cal. at Page 197, 252 P. 602, 603; *Williams v. Lockwood*, 175 Cal. 598, 601, 166 P. 587; *Fechenscher v. Gamble*, 12 Cal. 2d 482, 495, 85 P. 2d 885; *Curry v. King*, 6 Cal. App. 568, 575, 92 P. 662; *Silver v. Logue*, 127 Cal. App. 565, 571, 16 P. 2d 183; *Jolton v. Minster, Graf & Co.*, 53 Cal. App. 2d 516, 522, 128 P. 2d 101; *Baird v. Madsen*, 57 Cal. App. 2d 465, 476, 134 P. 2d 885."

In *Faultersack v. Clintonville Sales Corporation*, 253 Wis. 432, 34 N. W. (2d) 682 (1948) the defendant, an auctioneering corporation, sold plaintiff's farm to a purchaser whom it financed. Although defendants' president, who acted as auctioneer at the sale, knew of the agreement be-

tween it and the buyer, the plaintiff was not informed of the arrangement prior to the sale. There was no showing of fraud or damages. The sale price was below that stipulated by the seller, yet he was present when the farm was knocked down and he knew to whom it was being sold. The defendant tendered the net proceeds of the sale, less its commission, to the seller, who demanded that the total commission be refunded. The court held for the seller, stating that:

“An agent is in a fiduciary relation to its principal, which results in a duty to disclose every material fact relating to the agency. Where there is a non-disclosure of a material fact relating to the agency, though there is a showing of neither fraud nor damages, the agent forfeits the right to any commission. The reason is that the principle is preventive rather than curative.”

In *In Re Arbuckle's Estate*, 98 Cal. App. 2d 562; 220 P. 2d 950 (1950), the court said:

“* * * The acts of an agent are judged with almost the same strictness as those of a trustee. *Williams v. Lockwood*, 175 Cal. 598, 601, 166 Pac. 587. A trustee is not permitted to use or deal with trust property for his own profit or for any other purpose unconnected with the trust in any manner. (Civ. Code, sec. 2229.) ‘A violation of duty on the part of a trustee is treated as a fraud upon the beneficiary (Civ. Code, sec. 2234), and a violation of duty on the part of an agent should be treated in the same manner. Civ. Code, sec. 2322; *Sterling v. Smith*, 97 Cal. 343, 32 Pac. 320. Under said section 2322, an agent may not do any act which a trustee is forbidden to do.’ *Darrow v. Robert A. Klein & Co., Inc.*, 111 Cal. App. 310, 316, 295 Pac. 566, 568; *Elam v. Arzaga*, 122 Cal. App. 742, 746, 10 P. 2d 850.”

It is submitted that in the instant case Lotz clearly violated his fiduciary duties to Mid-States. The undisputed

evidence in the case shows that at the time Lotz met with Hatfield and Titus in Chicago following the New York meeting he failed to disclose his financial condition and the imminent termination of his agency for American Fidelity because of his inability to pay it what he owed (R. 205-207, 654, 718-720). He was advised by Hart not to contact Cass while in Chicago because Cass might contact Mid-States (R. 654, 656). The court concluded that Lotz was "a very confused and mentally upset person * * *" (R. 108); that because of his mental and physical condition he was influenced by Smead; and that Lotz was an imprudent, ill-advised businessman who did not know very much about the internal operations and problems of his agency. The court further concluded that Lotz did not intend to conduct himself fraudulently in trying to save his business and therefore was not guilty of a breach of his fiduciary obligations to Mid-States (R. 108-110; Finding XIV, R. 129-135).

However, the undisputed evidence shows that Lotz was familiar with the conditions and workings of his agency, although he may have left many operating details to Smead. He helped Oldberg get his bearings regarding the business of the agency (R. 692); and he knew about the rates on insurance written (R. 693). Lotz personally negotiated his new agency contract of September 1, 1951 with Mid-States (R. 631). He met with Hart and Feller in Oakland on August 22, 1951 and discussed his indebtedness to American Fidelity with them (R. 635). He was familiar with his check made payable to American Fidelity that had been returned for non-payment prior to the meeting in New York, and with his indebtedness to American Fidelity, arising out of a prior reinsurance deal between Public Service Insurance Company and American Fidelity (R. 625-626, 631-632). He discussed the Public Service Rewrite with Hart and Feller while they

were in Oakland (R. 635) and he was generally familiar with what went on following his meeting with them on August 22, 1951 (R. 636). He knew the Public Service Rewrite checks made payable to Mid-States had been deposited in his trustee account (R. 637), and that checks representing substantially all the proceeds thereof were thereafter deposited in American Fidelity's account in Oakland (R. 636-638). He personally signed four of the checks on his trustee account made payable to American Fidelity which represented substantially all the premiums received for Mid-States' account on the Rewrite (R. 635-638). He personally discussed his lack of authority to endorse checks made payable to the order of Mid-States with an officer of the Anglo Bank (R. 666-671; Intervening Pl's. Exhs. 2, 3), and he corresponded with Hatfield about his lack of authority to endorse (R. 291-292; Intervening Pl's. Exh. 4). He testified that he thought he was present when Hart asked that Lotz' bookkeepers make a tab run to develop the balances due from Lotz' sub-agents and the amounts due the insurance companies, and stated that "it is probably right" that his bookkeepers developed those figures for Hart while the latter was in Oakland in August (R. 633). After August 22, 1951 Lotz maintained a private black memorandum book in which he regularly recorded the payments being made from time to time to American Fidelity on its account (R. 661-662). He wrote out a supplemental statement on December 7, 1951, took it to Santa Monica, and personally delivered it to Mr. Oldberg, and there is not one iota of evidence in the record that anyone helped him prepare it. Lotz reviewed the transactions following August 13, 1951 with Hatfield in Smead's presence following payment of American Fidelity's account in full, and Lotz concurred in most of it (R. 646). Lotz recalled Smead's writing of Plaintiff's Exhibit 11 in the agency office and was trying to write one himself which

he did not get completed (R. 649). He signed the statement on December 6 and thinks it was read over by Mead (R. 651). He knew of Smead's writing the additional statement on December 7, 1951 (R. 651, Plaintiff's Exhibit 12). He and Smead discussed the statements back and forth (R. 657). He was present when Plaintiff's Exh. 22 was prepared and after it was typed and the final corrections made, everyone present said it was a correct statement of the facts (R. 651-658).

Lotz' Insolvency.

There is no dispute in the evidence that Lotz was insolvent at the time of the New York meeting on August 13, 1951, and that his insolvency continued thereafter (Plaintiff's Exhibits 23, 25, and 27). It is clear that Lotz was unable to pay his total indebtedness to American Fidelity at that time or in the future out of funds owing Lotz on account of unpaid premiums on policies written up to that time for American Fidelity. Lotz suggested that he might be able to raise \$50,000.00 by a bank loan secured by commissions earned and to be earned but he was unable to do so. The defendants American Fidelity and American Plan directed that Lotz make prompt collection of his receivables and cease writing insurance for American Fidelity (Plaintiff's Exhibit 17). As a result it was obvious to the defendants that there would be no further premium income from business written in the future by Lotz for American Fidelity.

The court stated in its opinion that no "exact knowledge" of the financial status of the Lotz agency was known when the defendants carried on the various transactions complained about (R. 108). Apparently based upon this conclusion the court found that " * * * it is not true that defendants knew on or about August 1, 1951 or at any time

prior to approximately December, 1951 that Lotz was insolvent or that he would be unable to meet his obligations to Mid-States." (Finding VIII, R. 126), and further found that owing to the condition of Lotz' books he could not tell from them at any time "with any degree of accuracy" how much he owed Mid-States or American Fidelity or any other company he represented (Finding X, R. 127). It is submitted that these conclusions are clearly erroneous. The undisputed facts show that Lotz' premium receivables on business written for American Fidelity to August 13, 1951 were substantially less than the amount he owed American Fidelity; that Lotz did not then have sufficient funds on hand to meet his obligations to American Fidelity (Plaintiff's Exhibits 25, 23 pp. 13-17; R. 592-600); that Lotz was unable to procure a loan which he desperately needed to continue in business; and that the only way American Fidelity could obtain payment from Lotz was to place its own representative in Lotz' office to ensure that all funds received, regardless of on whose business, would be paid to it, and when even that failed to generate sufficient funds, as a last resort it realized that the debt could not be paid except by cancelling a part of it through the device of shifting the offsetting liability, namely, the American Fidelity Rewrite hereinafter discussed. Lotz knew on November 27, 1951, long before the audit of his affairs had been made by Mid-States, that by August 31, 1951, he "was insolvent to the extent of approximately \$100,000" (Plaintiff's Exhibit 6, R. 230). Hart admitted he knew Lotz was financially strained (R. 858), and that he "wasn't very liquid" and that by August 22, 1951 Lotz had "scraped the bottom of the barrel" (R. 870-871). It was solely because of Lotz' demonstrated inability to meet his debts as they matured that the due dates of Lotz' indebtedness to American Fidelity were advanced and Smead was hired as American Fidelity's

own direct agent to take charge of Lotz' finances and to apply all receipts to American Fidelity's indebtedness.

The trial court also refused to recognize as significant the fact that Smead, as the financial representative of American Fidelity and American Plan from the date of his appointment under the agreement made with Lotz on August 22, 1951, was thoroughly familiar with the financial condition of the Lotz agency and Lotz' insolvency, and his knowledge is, of course, the knowledge of his principal, American Fidelity, for which he acted.

The court's attention is also called to the fact that in its finding regarding the state of affairs of Lotz' books and records the trial court completely disregarded the testimony of Horton, a member of the firm of Lester, Herrick & Herrick, certified public accountants, who subsequently audited the books and records of the Lotz agency and who testified that a tape could have been run at any time, the completion of which would have taken a couple of days, which would have shown the approximate receivables and payables of the agency at that particular time (R. 613-615, 618-620). The court further ignored the written corroboration by the three former employees of the Lotz agency, including the head of the bookkeeping department, of Smead's statement that such a tape had been run and that the results were known to American Fidelity's paid agent Smead.

The Public Service Rewrite.

Lotz admitted that he discussed the Public Service Rewrite with Hart and Feller when they were in Oakland on August 22, 1951 (R. 635). We have previously reviewed Lotz' admissions with respect to his further participation in this Rewrite. Hart admitted that he knew about the proposed Rewrite when he was in Oakland at that time (R. 848-849), and that Lotz paid a 25% commission to

Russell and Bond, insurance agents, notwithstanding the fact that Lotz had an advance commission arrangement of only 15% with Mid-States. The Rewrite took place at a time when Lotz was insolvent and unable to pay American Fidelity what he owed it, and after his agency with it had been terminated and all American Fidelity policy forms in his office had been destroyed (R. 847-863; Plaintiff's Exhibit 29). Hart knew that the net proceeds of the Public Service Rewrite were being paid by Lotz to American Fidelity (R. 780, 804; Plaintiff's Exhibit 29). Thus, Lotz incurred an obligation to Mid-States for 85% of the premiums on the Rewrite and, although insolvent, received only 75% and paid substantially all of that to American Fidelity, thus saddling Mid-States with liability to the assureds under the rewritten policies and an uncollectible debt from Lotz, all for the benefit of American Fidelity and American Plan.

There is also no dispute in the evidence that the policies were not rewritten under Mid-States' rate chart, and that many of the assureds were sub-standard risks (Plaintiff's Exhibits 3 and 4; R. 198-203). Lotz had never before engaged in a rewrite transaction of this kind on behalf of Mid-States.

The first check received on account of the Public Service Rewrite was made payable to the order of Lotz but payment was stopped and a new check issued to the order of Mid-States. All subsequent checks were issued to the order of Mid-States. Lotz nevertheless endorsed Mid-States' name to the checks and deposited them in his own account, and he did this notwithstanding the fact that he had written Hatfield requesting authority to endorse checks so made payable, that he went to the Anglo Bank on August 30 or August 31, 1951 for the purpose of open-

ing a trustee account (R. 668), and told the bank that he was going to deposit in his account checks made payable to Mid-States and other companies, and that when Anglo asked him if he had authority to endorse checks made payable to Mid-States, he told it he had such authority (R. 670), and that Lotz subsequently received two letters from Mid-States in which authority to endorse checks so made payable was refused (Intervening Plaintiff's Exhibits 1, 2, 3 and 4, R. 287-292). Lotz did not discuss the Public Service deal with Hatfield until after it was completed (Plaintiff's Exhibit 31, R. 654, 656). Lotz' letter to Mid-States dated September 8, 1951 (Intervening Plaintiff's Exhibit 4, R. 292-293) is also significant. Although it was written two and a half weeks after the termination of Lotz' agency with American Fidelity, Lotz made no disclosure of that fact to Mid-States but told them a misleading half-truth—that "We are not sending the American Fidelity & Casualty Company any business whatsoever—you are getting it all."

Lotz made no disclosure of any of the facts to Mid-States prior to effecting the rewrite. Yet, the Court not only completely disregarded this undisputed evidence but, in spite of it, held that Lotz had not breached his fiduciary duties of fair dealing and full disclosure to Mid-States. Lotz and his employee Smead were acting for adverse parties at the time; yet he made no disclosure of any facts to Mid-States which would permit it to exercise its judgment with respect to this transaction. In further breach of his fiduciary duties, he transferred to American Fidelity substantially all of the premiums received from the Rewrite in partial satisfaction of his debt to it, with the full knowledge of American Fidelity of the source of the payment and of Mid-States' right to said funds.

We call the Court's attention especially to Plaintiff's Exhibits 3 and 4, dated September 28, 1951 and October

8, 1951, respectively, which clearly confirm Hatfield's testimony as to when he first received the dailies respecting this transaction.

The American Fidelity Rewrite.

This was the second transaction in which Lotz and his employee Smead dealt on behalf of adverse parties and with respect to which he failed to disclose the facts to Mid-States until long after the transaction was completed and Mid-States had begun to investigate the defendants' acts. The evidence regarding this transaction is undisputed. After the premiums on the Public Service Rewrite had been received by Lotz, and substantially all of them had been paid over to American Fidelity, and all available funds from other sources had been paid to it, there remained owing to American Fidelity from Lotz a balance of approximately \$61,000. There were then no other funds available, and Hart and Smead arranged this transaction under which American Fidelity policies with unexpired premiums in the amount of approximately \$61,000 would be cancelled and rewritten in Mid-States (Plaintiff's Exhibit 29, p. 18, message of October 30, 1951, p. 19; message of October 31, 1951). Hart admitted that all or substantially all of the premiums had already been paid by the assureds and that Lotz had told him he didn't have the money to pay American Fidelity these premiums (R. 893). Lotz admitted that he knew that most of the premiums had already been paid by the assureds (R. 663). It is significant that under this transaction Lotz could not have profited by way of any advance commission because Hatfield told him that none would be allowed on this deal (Plaintiff's Exhibit 29, Teletype Message dated October 31, 1951; Plaintiff's Exhibit 5, R. 218).

The sole effects of the transaction were (a) to reduce the unpaid balance of Lotz' indebtedness to American

Fidelity by the amount of the Rewrite and to transfer Lotz' obligation for the premiums to Mid-States while Lotz was insolvent and knew it, and (b) to place the liability to the assureds on Mid-States.

The Rewrite was effected following a telephone conversation between Hart and Hatfield. There is no dispute whatsoever regarding the statements made during this telephone conversation (Plaintiff's Exhibit 5, R. 215-223). Yet the Court stated in its opinion that it gave little weight to the argument that Hart's words were fraudulently intended, and further stated that Hatfield did not rely on Hart's representations (R. 112). The Court also found that the "defendants" did not know at the time the agreement was entered into that Lotz would be unable to pay Mid-States the premiums on the insurance to be so rewritten (Finding XII, R. 128); that "defendants" were not guilty of any fraudulent concealment or affirmative misrepresentations in respect to the transaction, and that Mid-States did not suffer any deception in respect thereof and did not rely thereon in entering into the agreement (Finding XIV, R. 133). It is submitted that there is no basis in the record for these conclusions of the trial court. There were four distinct misrepresentations by Hart, only two of which we deem it necessary to consider in view of their obviously fraudulent content:

(1) In replying to the following question by Hatfield, "You didn't kick them out, I know that", Hart replied, "* * * no, we didn't kick them out. Of course not" (Plaintiff's Exhibit 5, R. 222). Hart did not tell Hatfield that Lotz' contract with American Fidelity had been cancelled (R. 893). We do not deem it necessary to argue the question of whether or not Lotz' contract was terminated at its request or his. The preparation of Plaintiff's Exhibit 16 by Hart and Feller (American Fidelity's attorney) and the appointment of Smead

as its representative (Plaintiff's Exhibit 18) are sufficient answers to that question. It would be difficult indeed to imagine a termination by mutual consent with the drastic and extreme penalties such as were imposed upon Lotz in Plaintiff's Exhibit 17. He was stripped of every authority previously given him, the time limit for payment of his entire indebtedness to American Fidelity was fixed at September 15, 1951 (a period of three weeks) in lieu of the 75 days provided in his contract, all American Fidelity policy forms in his office had been destroyed (R. 895), and even the handling of his money was turned over to Smead as agent for American Fidelity and American Plan. Under any construction, Lotz' agency for American Fidelity had been cancelled and under the authorities hereinafter discussed Hart clearly misrepresented that fact. In spite of its great significance, the trial court concluded that Mid-States did not rely on the misrepresentation.

(2) Hart told Hatfield that Lotz had not paid the premiums on these policies to American Fidelity, in response to which Hatfield asked Hart how old the business was. Hart replied, "September." Hatfield repeated, "September", and Hart stated "September, and there's some August. But you see the September business is not due under our contract—we have 75 days * * * Actually, until December 15." (Plaintiff's Exhibit 5, R. 216). This was a deliberate and fraudulent misrepresentation. Lotz' agency from Mid-States had been cancelled in August and all policy forms had been destroyed by Hart himself when he was in Lotz' office in August. It was accordingly impossible for any of the business to have been written in the month of September. By this statement Hatfield was led to believe that Lotz was current in his account, since the premiums for September business were not due American Fidelity until December. The misrepresentation had the further effect of allaying any possible concern that Hatfield might have regarding Lotz, and inferred that the latter was still an agent of

American Fidelity and was continuing to write business for it as recently as the preceding month. In addition, the premiums on this business were already in arrears (R. 893).

It is further significant that (a) Hart was very careful before calling Hatfield to arrange to have the telephone conversation recorded but that he did not inform Hatfield of the recording, and (b) Hart was insistent in his conversation that Hatfield wire his acceptance of the proposal and state in the wire that Mid-States would look to Lotz for the premiums (R. 218), all without making the slightest suggestion to Hatfield of Lotz' financial condition.

Whether or not Hart intended to deceive Mid-States is, of course, an inference or conclusion drawn from the undisputed facts by the trial court and, as has been pointed out above, this court is not bound by such inference or conclusion but may make its own determination. There is no dispute in the record as to the exact statements made by Hart or that these statements were untrue. Hart acknowledged that his statement about when "the business was written" was not true (R. 896-897). He attempted to justify his statement about not having "kicked out" Lotz by saying the latter's agency was terminated by mutual agreement (R. 894-895).

It is the universal rule that where one undertakes to speak either voluntarily or in response to inquiry, he must make a fair and full disclosure and conceal no facts within his knowledge which materially qualify those stated. Thus, in *Rattray v. Scudder*, 28 Cal. 2d 228, 169 P. 2d 371 (1946), the court, in referring to the duty of disclosure, stated that:

"Even if plaintiff had not been Humston's broker and under no fiduciary duties, once he discussed the question whether a higher price was obtainable he had to 'speak the whole truth, and not by partial sup-

pression or concealment make the utterance untruthful and misleading'. *American Trust Co. v. California, etc. Ins. Co.*, 15 Cal. 2d 42, 65, 98 P. 2d 497, 508."

In *Wells v. Zenz*, 83 Cal. App. 137, 256 Pac. 484 (1927), the question involved the making of a false affidavit as to the alleged unknown whereabouts of the defendant. The court said at page 485:

"Fraud is a generic term which embraces all the multifarious means which human ingenuity can devise and are resorted to by one individual to get an advantage over another. No definite and invariable rule can be laid down as a general proposition defining fraud as it includes all surprise, trick, cunning, dissembling and unfair ways by which another is deceived. *Armstrong v. Wasson*, 933 Okla. 262, 220 Pac. 643. The statutes of California expressly provide that the suppression of a fact by one who gives information of other facts likely to mislead for want of communication of the fact concealed is deceived (Civ. Code, Sec. 1710), and any other act fitted to deceive is actual fraud (Civ. Code, Sec. 1572)."

The court said at page 486:

"As has been said, fraud may be committed by the suppression of the truth as well as by the suggestion of falsehood. It may consist in suppression of that which it is one's duty to declare as well as in the declaration of that which is false. 12 Cal. Jur. 770."

In the above case it appeared that while the affiant actually did not know the whereabouts of the defendant, affiant did know that a third person knew the defendant's whereabouts, although that third person did or would probably not give affiant that information.

In *Kuhn v. Gottfried*, 103 Cal. App. 2d 80, 229 P. 2d 137 (1951), there was a suit by the purchaser of a house against the seller on the grounds of fraud because of non-disclosure

that the house purchased was infested with termites. The court said:

“Concealment may constitute actual fraud where the seller knows of facts which naturally affect the property which he knows are unknown to the buyer. *Dyke v. Kaiser*, 80 Cal. App. 2d 639, 192 P. 2d 344; *Rogers v. Warden*, 20 Cal. 2d 286, 125 P. 2d 7; *Boas v. Bank of America*, 51 Cal. App. 2d 532, 125 P. 2d 620. The cases cited are also authority for the proposition that where one is under no duty to speak but yet undertakes to do so either voluntarily or in response to inquiry, he must make a fair and full disclosure and conceal no facts within his knowledge which materially qualify those stated including any facts which affect the desirability of the property to be sold.”

The misrepresentations made by Hart were not misunderstood or ambiguous terms. They were definite specific statements of facts known to Hart. Under all the circumstances under which the conversations took place: the careful and secret preparation for recording, the continued insistence upon a telegram of acceptance specifying that Mid-States would look to Lotz solely for the premiums, Hart's care to add that “some” of the business was written in August after he had twice specified that it had been written in September and Hatfield had indicated a little surprise at that, Hart's specification that the premiums were not due until December 15 “under our contract” although he knew full well that the contract had been terminated and that payment from Lotz by September 15, 1951 had been insisted upon, his reference to the 15% advance commission that Lotz had hoped to receive thereon when he already knew that the same had been refused by Mid-States, his purported examination of American Fidelity's records as to the status of Lotz' loss ratio and his misstatement with respect thereto, all show clearly that

Hart intended to and did, by deliberate misstatements, half truths and concealment lead Mid-States to believe that Lotz' contract had not been terminated, that Lotz was current in his obligations and that Lotz, and not American Fidelity, had initiated and desired the rewrite.

As the court said in *Hayter v. Fulmore*, 92 Cal. App. 2d 392, 206 P. 2d 1101 (1949), at page 398:

“A fraudulent intent to deceive another may be inferred from a material statement which is made with full knowledge that it is false. When one deliberately makes false representations of material facts, knowing them to be untrue, the law supplies the fraudulent intent to deceive. (*Boas v. Bank of America National Trust & Savings Assn.*, 51 Cal. App. 2d 592, 598 (125 P. 2d 620); 37 C. J. S. 259, Sec. 22.)”

Accordingly, the court's finding that Hart did not intend to deceive or defraud is erroneous as a matter of law and is not even a permissible inference to be drawn from the facts. As stated in the Restatement of the Law of Torts, Section 526:

“A misrepresentation in a business transaction is fraudulent if the maker

“(a) knows or believes the matter to be otherwise than as represented, or

“(b) knows that he has not the confidence in its existence or non-existence asserted by his statement of knowledge or belief, or

“(c) knows that he has not the basis for his knowledge or belief professed by his assertion.”

Actually, of course, as the *Hayter* case itself points out, even if these misstatements were made as the result of negligence or carelessness, the defendant American Fidelity would be liable to Mid-States for constructive fraud.

The finding that the statements were not relied upon by Hatfield or by Mid-States in entering into the contract with

American Fidelity for the rewrite is obviously based upon the court's statement in its opinion (R. 112) that "taking into consideration the fact that Hart and Hatfield were both experienced business executives in large competing insurance companies it is the court's view that Hatfield did not rely on Hart's representations." There is no evidence whatsoever in the record that Hatfield did not rely on Hart's misrepresentations; the finding that he did not is completely unsupported and is clearly erroneous unless under the law Hatfield was not justified in relying upon a specific statement of fact made by a competitor in negotiating a business transaction. But under the law Hatfield *was* justified in so relying. As the court said in *Anderson v. Thacher*, 76 Cal. App. 2d 50, 172 P. 2d 533 (1946) at page 70:

"The possible but antiquated authority that one must assume that everyone with whom he has a business transaction is a rogue and act accordingly will not receive judicial approval. The courts rather will hold that one can act upon the presumption that there exists no intention to defraud him. (*Tidewater Southern Ry. v. Harney*, 32 Cal. App. 253, 260, 162 Pac. 664.)"

As the United States Court of Appeals for the Fourth Circuit said in *Bishop v. E. A. Strout Realty Agency, Inc.*, 182 F. 2d 503 (1950) at page 505:

"There is nothing in law or in reason which requires one to deal as though dealing with a liar or a scoundrel, or that denies the protection of the law to the trustful who have been victimized by fraud."

The court, in that case, quoted with approval Section 540 of the Restatement of the Law of Torts, as follows:

"The recipient in a business transaction of a fraudulent misrepresentation of fact is justified in relying upon its truth, although he might have ascertained the falsity of the representation had he made an investigation."

As is stated in 12 Cal. Jur., Sec. 34, and quoted in *United States National Bank v. Stiller*, 216 Cal. 324, 14 P. 2d 78 (1932):

“Every contracting party has an absolute right to rely on the express statement of an existing fact the truth of which is known to the opposite party and unknown to him, as the basis of a mutual agreement; and he is under no obligation to investigate and verify statements to the truth of which the other party to the contract, with full means of knowledge, has deliberately pledged his faith.”

The fact that Hart was the head of a supposedly reputable insurance company and experienced in insurance accounting was all the more reason why Hatfield or anyone else would and should assume that representations made by him would be truthful and not false. Indeed, Hart posed as a friend of Hatfield's by saying that he did not want to proceed unless he got Hatfield's okay “because you and I have always worked close together.” Under the circumstances the law presumes that Hatfield and Mid-States did rely on Hart's misrepresentations unless there is affirmative proof to the contrary, which is not here present. The rule is stated in the Restatement of the Law of Contracts, Section 479:

“Where fraud or misrepresentation is material with reference to a transaction subsequently entered into by a person deceived thereby, it is assumed in the absence of facts showing the contrary that it is induced by the fraud or misrepresentation.”

That the deliberate misrepresentations were intended to, and did, deceive Mid-States to its damage is clear. As the court in *Gibbons v. Brandt*, 170 F. 2d 385 (C. C. A., 1947), said, in quoting from *The People v. Gilmore*, 345 Ill. 28, 46, 177 N. E. 710, 717:

“Fraud in its generic sense, especially as the word

is used in courts of equity, comprises all acts, omissions, and concealments involving a breach of legal or equitable duty and resulting in damage to another. * * * It may consist in * * * the positive assertion of a falsehood, or in the creation of a false impression by words or acts, or by any trick or device, or in the concealment or suppression of the truth, or in both a suggestion of falsehood and a suppression of truth together. *Bundesen v. Lewis*, 291 Ill. App. 83, 9 N. E. 2d 327, 333. We find no authority requiring that the representation must have been of such character as to amount to perjury. A single word, even a nod or a wink or a shake of the head or a smile or gesture intended to induce another to believe in the existence of a non-existing fact may be fraud. *Walters v. Morgan*, 3 De G. F. & J. 718, 64 Eng. Ch. 718, 45 Eng. Reprint 1056; *Turner v. Harvey*, 1 Jac. 169, 4 Eng. Ch. 169, 37 Eng. Reprint 814; *Wicker v. Worthy*, 51 N. C. 500; 26 C. J. 1071; 37 C. J. S. Fraud, Sec. 15. Since there is no difference in the natural effect on the mind of one deceived, whether the deceiver uses words, writings, or symbols, it follows that there is no difference in the legal consequence and the deceiver is liable no matter what means he employs. *Morley v. Harrah*, 167 Mo. 74, 66 S. W. 942. In other words, if deception is accomplished, the form of the deceit is immaterial. The impelling question is 'did it produce upon the mind a false impression conducive to action?' "

The answer in this case is an unqualified "Yes". It is submitted that the trial court's conclusion to the contrary is clearly erroneous.

Smead's Part in the Transactions.

The trial court stated in its opinion that "In the absence of a showing of fraudulent intent on the part of the defendants the act of appointing Smead does not appear overly significant to the decision in this case." The court further stated that very little credence could be given to

Smead's testimony, and then obviously concluded that his written statements, made immediately following the first knowledge of Mid-States of the events that had occurred subsequent to August 13, 1951 and long prior to the trial, should be given no effect.

Smead signed four statements (Plaintiff's Exhibits 11, 12, 13, 22 and 31) to which reference has already been made. The first statement was also signed by Lotz, and the acknowledgment of Smead's signature thereon taken by Lotz' attorney, Mead (R. 928-930). Neither Lotz nor Mead ever denied the truth of these statements. Lotz also wrote out and signed a separate statement (Plaintiff's Exhibit 31, R. 653-655). Lotz' own admissions corroborated many of the facts contained in the statements. Mead, notwithstanding the fact that he was Lotz' attorney, and was representing Smead as Lotz' employee, until the end of 1951 and was thoroughly familiar with Lotz' affairs, testified that he never read any of the statements (R. 930-931, 939) although he knew, of course, they had been given. His thorough familiarity with Lotz' affairs is evidenced by the further fact that Lotz' proposal to Mid-States for the continuance of his agency, contained in Lotz' letter to Mid-States dated November 27, 1951 (Plaintiff's Exhibit 6, R. 230, 511), which acknowledged Lotz' violation of his agency contract, was prepared in Mead's office and read by him, and that Mead prepared a so-called "target plan" which he submitted to Mid-States and which he said he believed would enable Lotz to eventually pay his indebtedness to Mid-States and continue his operations as an insurance agent (R. 1006-1011, 1013-1017, 1024, 1028-1035).

The trial court also obviously disregarded the fact that Smead's statement of December 18, 1951 (Plaintiff's Exhibit 22) was witnessed by Miss Faye Roach, formerly head bookkeeper of the Lotz agency, Miss Martha Keyes,

formerly secretary to Lotz and Smead, and Miss Janice S. Howard, formerly a bookkeeper for Lotz.

The weight and effect to be given to these various, almost contemporary, written statements can be determined by this court fully as well as by the trial court. The accuracy and the credibility to be given them does not depend upon the demeanor of Smead on the witness stand or any presumed advantage which the trial court had by observing Smead. Smead admittedly made contradictory statements. That he had lied in the course of prior proceedings concerning some of these matters is established by the record and does not depend upon the trial court's observance of his demeanor. The sole question is whether more weight should be given to Smead's oral denial of these statements while he was in the employ of American Fidelity than to his prior almost contemporaneous written statements. This Court of Appeals not only can pass upon the weight to be given this evidence as well as the trial court, but under the decisions is impelled to make its own determination.

This rule has been followed by this court in *Smyth v. Barneson*, 181 F. 2d 143 (C. A. 9, 1950) in which this court stated, at page 144:

"In determining this point we consider all of the evidence, giving the written evidence the weight we deem it entitled to *de novo* and applying the oral evidence with 'due regard * * * to the opportunity of the trial court to judge of the credibility of the witnesses.' "

In *Carter Oil Co. v. McQuigg*, 112 F. 2d 275 (C. C. A. 7, 1940), the court stated, at page 279:

"Where the question is one of veracity it is clear that the appellate court should give controlling weight to the trier of fact who saw and heard the witnesses. This is well established. Where the testimony con-

sists of documentary evidence and depositions, the master is in no better position to determine an issue of fact than a reviewing court. The District Court's finding on such evidence is likewise subject to free review unaffected by presumptions which ordinarily accompany their findings on controverted issues."

It must also be remembered that throughout this period Smead was the direct compensated employee of American Fidelity and that all his acts performed pursuant to such employment are binding upon defendants American Fidelity and American Plan for whom he acted. His employment is evidenced by the written instrument dated August 22, 1951 (Plaintiff's Exhibit 17, R. 456-460) and this court can, under the doctrine above referred to, interpret as well as the trial court the scope of the agency thereby created. Under these circumstances it is clear that the trial court erred when it concluded that the agency was solely with respect to collection of premiums owed on American Fidelity insurance and the payment thereof to American Fidelity.

It is uniformly held that where the trial court's findings are in effect findings as to the legal effect of documents or transactions rather than findings which resolve disputed facts, the Court of Appeals is free to make its own determination as to the legal conclusion to be drawn. Thus, the construction of a contract is within the competence of the Court of Appeals.

Crosley Radio Corp. v. Dart, 160 F. 2d 426 (C. C. A. 6, 1947).

Continental Illinois National Bank and Trust Company of Chicago v. Ehrhart, 127 F. 2d 341 (C. C. A. 6, 1942).

Nee v. Main Street Bank, 174 F. 2d 425 (C. A. 8, 1949).

The truthfulness of Smead's written statement is fully corroborated by the events which actually transpired immediately following the New York meeting of August 13, 1951.

Lotz' Responsibility For His Own Acts.

That the judgment in this case is based in large part, if not entirely, upon a misapprehension of the correct rule of law applicable to the facts, is clearly demonstrated by the reference by the trial court in the Findings and in its Opinion to the "facts" that Lotz was a sick man and an inefficient agent, that his bookkeeping was not kept up to date and that Mid-States did not investigate Lotz' activities more carefully. It is apparent from these references that the court assumed that if a breach of the fiduciary duty of Lotz as agent was due to his illness or his negligence or inattention to business, the breach was excusable and could not be the basis of a recovery by the plaintiff even of money admittedly owed it by the agent. The law is, of course, quite otherwise. Not only does illness or preoccupation with other matters or negligence not excuse a breach of trust; it is in and of itself, in a professional compensated agent, a breach of trust. The rule is succinctly stated in 2 Am. Jur. 220:

"An agent owes to his principal the use of such skill as may be required to accomplish the object of his employment; if he omits to exercise reasonable care, diligence, and judgment as the result of which failure his principal is damaged, he may be held responsible for such damage. If one who undertakes the business of another is capable of managing it and neglects to do so with due care, he is answerable; if he is not capable, he is still answerable, for he ought not to have engaged to do that which he could not perform. Even where the principal is habitually negligent in attending to his own interests, such negligence forms

no excuse for similar negligence on the part of his agent.”

In *Myerson v. New Idea Hosiery Company*, 217 Ala. 153, 115 So. 94, 55 A. L. R. 1231 (1927), the court recognized this principle as applicable even to a gratuitous agent.

As stated in *Allen v. Suydam*, 20 Wendell 321, at page 331, 32 Am. Dec. 555 (1838):

“It is the duty of a faithful agent to do for his principal, whatever the principal himself would probably have done, if he was a discreet and prudent man. Even where the principal is habitually negligent in attending to his own interests, it forms no excuse for similar negligence on the part of his agent.”

In this case, of course, there is no claim whatsoever that Mid-States was itself negligent in attending to its business. The sole “negligence” adverted to by the court was merely that Mid-States did not continually investigate Lotz’ books and his method of handling premiums collected. Obviously, there is no duty on a *cestui que trust* to investigate his fiduciary to ascertain whether or not the fiduciary is performing his obligations properly; the beneficiary has a right to assume that the fiduciary is acting properly.

As the court said in *American Trust & Banking Co. v. Boone*, 102 Ga. 202, 29 S. E. 182, 40 L. R. A. 250 (1897):

“Every person is presumed to have the intention of discharging whatever duty the law may cast upon him. It is therefore presumed that a trustee will faithfully administer the trust. * * *”

In this case, Lotz understood the duties of a general insurance agent. He fulfilled these duties with at least ordinary skill, as is shown by the fact that after he had represented Mid-States in that capacity for some years,

he was employed by American Plan and American Fidelity in a similar capacity. As the Supreme Court of Maryland said in *Baltimore Base Ball & Exhibition Co. v. Pickett*, 78 Md. 375, 28 A. 279, 22 L. R. A. 690 (1894), in quoting with approval the Supreme Court of Pennsylvania,

“* * * ‘where skill, as well as care, is required in performing the undertaking, if the party purport to have skill in the business, and he undertakes for hire, he is bound to the exercise of due and ordinary skill in the employment of his art or business about it, or, in other words, to perform it in a workmanlike manner. In cases of this sort he must be understood to have engaged to use a degree of diligence and attention and skill adequate to the performance of his undertaking.’ * * *”

The Defendants' Responsibility for Smead's Acts.

The court stated in its opinion that Lotz was a sick and disturbed man and that the evidence disclosed that he relied very heavily on Smead's abilities (R. 111). As we have shown above, Lotz' lack of ability, if any, is not only not an excuse for his breach of his fiduciary duties but is in itself a breach of such duties. Similarly, the court clearly erred as a matter of law in ruling that because Lotz relied on Smead neither Lotz nor the other defendants were liable for the breach of Lotz' fiduciary duties occasioned by the acts of Smead. Smead was an employee of Lotz, acting in the capacity of General Manager throughout the period in question, and under well settled law the master Lotz is responsible for all the acts of his servant Smead performed within the scope or apparent scope of Smead's employment. This is true even if Smead had actually disobeyed Lotz' specific instructions, as to which there is no evidence in the record.

Thus, in *Transcontinental & W. Air v. Bank of America, Etc.*, 46 Cal. App. 2d 708, 116 P. 2d 791 (1941), the plain-

tiff had agreed to sell travelers checks issued by defendant's bank, and plaintiff's employee, in charge of one of its offices, appropriated the proceeds from the sale of certain of the checks to his own use. Plaintiff sued to recover the amount of these checks and the court affirmed a judgment of the trial court in favor of the defendant, stating that:

“It is fundamental that if a duty of the master be violated by his employee the master is liable the same as though he personally were guilty of the breach. Such liability of the master is not obviated by the fact that his servant acted contrary to instructions and criminally. *Muehlebach v. Paso Robles Hotel Co.*, 65 Cal. App. 634, 225 P. 19. The fact that the faithlessness of the employee in committing the wrong may amount to a felony does not alter the obligation of the agent to his principal so long as the servant is acting within the scope of his employment. *Ibid*; *Hiroshima v. Pacific Gas & Electric Co.*, 18 Cal. App. 2d 24, 63 P. 2d 340; *Grigsby v. Hagler*, 25 Cal. App. 2d 714, 78 P. 2d 444. Because May exceeded his authority in withholding proceeds received by him from the sales of the cheques does not relieve plaintiff; in issuing the cheques he was acting within the scope of his employment. * * *”

Smead was also the direct employee of American Fidelity and American Plan. His actions, while serving in the dual capacity of Lotz' General Manager and of American Fidelity's and American Plan's representative, are binding on all for whom he acted. That the device, for example, of the American Fidelity Rewrite was suggested to American Plan and American Fidelity by Smead rather than Hart or any other of the defendants' representatives, is completely immaterial and all the defendants are liable for Smead's acts. Hart himself admitted that Smead was the agent of American Fidelity (R. 909). The court's em-

phasis on Lotz' reliance on Smead clearly demonstrates its misconception of the proper rule of law applicable to this situation.

**Mid-States' Knowledge of the Acts of the Defendants
Subsequent to August 13, 1951.**

Hatfield left for Oakland on November 23, 1951 (R. 208), following a telephone conversation from Oldberg, Mid-States' resident Vice-President in Los Angeles, on November 20, 1951 (R. 209). Mr. Csar, Mid-States' staff counsel, accompanied Hatfield. They arrived in Oakland on November 24, 1951 (R. 225). By that time American Fidelity's account had been paid in full (R. 643). At that time Hatfield saw Lotz, Smead and Lotz' attorney, Mead (R. 209). A meeting was held in the Leamington Hotel, at which Hatfield, Csar, Oldberg, Kledzik and Lotz were present. Smead was not present. At that meeting Lotz stated that he thought he was about \$100,000 short (R. 226). The next morning a further meeting was held at the Leamington Hotel in Oakland, at which time Lotz, Smead and Mead were all present and a discussion was held as to how Mid-States could keep Lotz operating with a view to his coming out of his financial difficulty (R. 226-227). Lotz stated that his financial condition was due to his operating costs and the payment of too high a rate of commission to brokers. Nothing was said about the cancellation of Lotz' contract with American Fidelity or the Public Service Rewrite (R. 228).

On November 27 a further conference was held with Lotz, Smead and Mead at the Leamington Hotel and also in Mead's office, at which time plaintiff's Exhibit 6 was typed, signed by Lotz and witnessed by Mead (R. 229-233, 1010-1011). Hatfield reviewed the entire past with Smead in Lotz' presence and Lotz "concurred in most of

it'', following which Hatfield called his principals in Chicago (R. 646). Csar left Oakland on November 30 and took plaintiff's Exhibit 6 back with him to Titus in Chicago (R. 234). The latter came out to Oakland on December 5, following which he had conferences with Lotz and Smead (R. 234). Following these conferences the statements of Smead and Lotz previously referred to (Plaintiff's Exhibits 11, 12, 13, 22 and 31) were signed and delivered.

On December 4, 1951 Hatfield and Lotz went to the insurance department in San Francisco (R. 236) and Lotz then told Hatfield about the New York meeting with Hart and the representatives of American Fidelity (R. 236-237) and he stated to Hatfield substantially the facts set forth in the statement Smead signed under date of December 6, 1951 (Plaintiff's Exhibit 11). Lotz at no time denied this conversation.

Thus, knowledge of the various breaches of Lotz' fiduciary duties and the participation of the defendants therein did not actually come to Mid-States until December 4, 1951, when Lotz made disclosure of the facts to Hatfield. Although some facts became known to Mid-States on November 20, 1951, by that time likewise all of the wrongful acts of the defendants had been effected, American Fidelity had been paid in full, and Lotz was indebted to Mid-States for more than \$400,000. Until this disclosure Lotz' account with Mid-States had been substantially current; no business had been written for Mid-States in April, May or July and only \$32,000 in June, and payment of the June balance had been made on October 15, 1951. Mid-States accordingly had no knowledge of Lotz' insolvency. No disclosure had been made of the loan by American Plan to Lotz in August, 1951 for the purpose of making his account with American Fidelity appear to be current, although the transaction was simply a transfer of the ac-

count payable from one company to another. No disclosure had been made by anyone that the Public Service Rewrite checks had been made payable to Mid-States and deposited in Lotz' account, and that substantially all the proceeds therefrom had been remitted to American Fidelity, and there was no occasion for any inquiry with respect thereto by Mid-States, since payment of the premiums on the Rewrite would not be due under Lotz' contract with Mid-States for 60 days following the end of September. Obviously, in view of these facts, coupled with Hart's misrepresentations to Hatfield in the telephone conversation of October 31, 1951, Mid-States had no reason to make any inquiry of Lotz regarding his financial affairs.

The court concluded that this case is governed by the rule that a debtor may prefer one creditor over another in the absence of fraud or breach of fiduciary obligation, and held that (a) the acts of the defendants were not fraudulent, and (b) that no fiduciary relationship existed between Lotz and Mid-States and, therefore, no breach of such obligation occurred. It is submitted that in the instant case the acts of the defendants go far beyond the creation of a mere preference. The conduct of American Fidelity and American Plan, in concert with the remaining defendants, even goes far beyond the conduct of the recipient creditor and the other parties in the case of *Machado v. Katcher Meat Co.*, 108 Cal. App. 2d 1, 237 P. 2d 715 (1951) in which all of the defendants were held liable for the indebtedness owing by the debtor corporation to the plaintiff creditor. The trial court attempted to distinguish the *Machado* case on the ground that in that case the recipient creditor knew that the plaintiff and other creditors could not be paid while in the instant case the defendants had no such knowledge. The trial court further stated in its opinion that in this case no motive was shown for Lotz to engage in a fraudulent plan, while in the *Machado* case

a motive consisting of the intimacy of the recipient creditor with the principal officers of the debtor corporation was sufficient motive. The trial court further concluded that Lotz' motive to continue in business was not a sufficient basis upon which to predicate a finding of wrongful conduct on his part. It is submitted that this attempted distinction between the cases is without basis, since the acts of Lotz were clearly in breach of his fiduciary duties to Mid-States, and the acts of all the defendants acting in concert with him created the indebtedness of Lotz to Mid-States for the express purpose and with the actual result of providing the very source out of which to make American Fidelity whole at the expense of Mid-States while Lotz was insolvent.

II.

ALL WHO PARTICIPATE IN THE BREACH BY AN AGENT OF HIS FIDUCIARY OBLIGATIONS TO HIS PRINCIPAL OR WHO RECEIVE THE BENEFITS OF SUCH BREACH WITH KNOWLEDGE THAT THE AGENT'S ACTIONS ARE A BREACH OF HIS FIDUCIARY DUTIES, ARE EQUALLY LIABLE WITH HIM TO THE PRINCIPAL REGARDLESS OF THE EXTENT OF THEIR PARTICIPATION.

In *Duckett v. National Mechanics' Bank of Baltimore*, 86 Md. 400, 38 A. 983, 39 L. R. A. 84 (1897), the court said:

“There can be no dispute that as a general principle all persons who knowingly participate or aid in committing a breach of trust are responsible for the wrong, and may be compelled to replace the fund which they have been instrumental in diverting. Every violation by a trustee of a duty which equity lays upon him, whether wilful or fraudulent, or done through negligence, or arising through mere oversight or forgetfulness, is a breach of trust; 2 Pom. Eq. Jur. § 1079. There is in such instances no primary or secondary liability as respects the parties guilty of, or participating in, the breach of trust; because all are

equally amenable. * * * Whoever knowingly aided him, or knowingly participated with him in misapplying that fund, is by reason of so aiding and so participating, equally liable with him to make the fund good by restoring it to the trust estate; 2 Pom. Eq. Jur. § 1079. * * *,”

In *Herron v. Hughes*, 25 Cal. 555 (1864), the court held that where the property of the principal was transferred by the agent without the principal's knowledge to another in satisfaction of a debt with the payee's knowledge of the agency, the payee was liable to the principal.

A further illustration of the erroneous conclusion of the trial court that the defendants are without liability to Mid-States is apparent from its findings and conclusions regarding the defendants' fraudulent intent. Constructive fraud results when one takes advantage of his fiduciary relationship to obtain an advantage at the expense of the confiding party and no fraudulent intent need be proved. The court stated in its opinion that no motive was shown for Lotz to engage in a fraudulent plan (R. 106); that Lotz had the intention of remaining in business but that he did not reap any benefits as the result of the alleged fraudulent conspiracy (R. 108); and that Lotz did not intend to conduct himself fraudulently in trying to save his business (R. 110). These conclusions are set forth in Finding XIV, R. 130-135. Apparently the court's conclusions are based on the theory that no breach of a fiduciary obligation is actionable unless it is proved that the breach was the result of a fraudulent intent. It is submitted that this view is clearly contrary to the uniform holding of the authorities. Thus, Section 1572 of the California Civil Code provides:

“*Actual fraud, what.* Actual fraud, within the meaning of this chapter, consists in any of the following acts committed by a party to the contract, or with

his connivance with intent to deceive another party thereto *or* to induce him to enter into the contract.

“1. The suggestion, as a fact of that which is not true by one who does not believe it to be true.

“2. The positive assertion, in a manner not warranted by the information of the person making it, of that which is not true though he believes it to be true.

“3. The suppression of that which is true by one having knowledge or belief of the fact.

“4. A promise made without any intention of performing it; or

“5. Any other act fitted to deceive.”

Section 1573 of the California Civil Code defines constructive fraud as consisting

“* * * 2. In any such act or omission as the law specially declares to be fraudulent, without respect to actual fraud, * * *”

This section was applied by the court in *In Re Arbuckle's Estate*, 98 Cal. App. 2d 562; 220 P. 2d 950 (1950) where the court said:

“Fraud is either actual or constructive. It is conceded that actual fraud is not present here. Civil Code section 1573 defines constructive fraud as consisting: ‘* * * 2. In any such act or omission as the law specially declares to be fraudulent, without respect to actual fraud.’ Fraud assumes so many shapes that courts and authors have ever been cautious in attempting to define it. Each case must be considered on its own facts. 12 Cal. Jur. 705, sec. 2. In its generic sense, constructive fraud comprises all acts, omissions and concealments involving a breach of legal or equitable duty, trust, or confidence, and resulting in damage to another. *In re Hearn's Will*, 158 Misc. 370, 285 NYS 935, 941; *In re Dorrity's Will*, 118 Misc. 725, 728, 194 NYS 573, 575; 37 CJS, Fraud §§ 1, 2 and 3 pages 204, 211, 213. Constructive fraud exists in cases in which conduct, although not actually fraudulent,

ought to be so treated,—that is, in which such conduct is a constructive or quasi fraud, having all the actual consequences and all the legal effects of actual fraud. *Herd v. Tuohy*, 133 Cal. 55, 62, 65 P. 139; *Higgins v. California Petroleum etc. Co.*, 147 Cal. 363, 368, 81 P. 1070; *Higgins v. California Petroleum etc. Co.*, 122 Cal. 373, 376, 55 P. 155; *Younglove v. Hacker*, 15 Cal. App. 2d 211, 217, 59 P. 2d 451; 12 Cal. Jur. 710, sec. 5; cf. *In re Dorrity's Will*, 118 Misc. 725, 194 NYS 573; *Schultz v. Schultz*, 35 NY 653, 91 Am. Dec. 88; *Rose v. Hunnicutt*, 166 Ark. 134, 265 S. W. 651."

Defendants' Liability for the Damages Arising Through Their Concerted Action.

The trial court found that no conspiracy to defraud Mid-States existed among the defendants. This finding is apparently predicated on two bases: (1) that the action of Lotz and the other defendants, in misrepresenting the facts to Mid-States both by affirmative misrepresentations and non-disclosure of other facts and in diverting Mid-States' funds to American Fidelity, did not constitute fraud because of a presumed lack of intent to defraud, and (2) because no specific prior agreement to perform all these acts was entered into.

It is submitted that the first basis is clearly erroneous and is founded upon incorrect inferences and legal conclusions and a failure to recognize the applicable legal principles. One such error, not previously mentioned, is the court's reference to the fact that Lotz did not reap any benefits from the transactions, that "it is an incompetent conspirator, indeed, who at the completion of his 'fraud' ends up in a worse financial condition than when he started," and that his sole object was to stay in business (R. 108). The specific intent to defraud is thus confused by the court with the motivation for Lotz' acts. The intent to defraud is the intention to accomplish an act which results in de-

frauding another; the motivation is, except in most unusual circumstances, never the defrauding as such, but the accomplishment of some other end, such as self-advantage.

In this case, Lotz was admittedly not motivated by a desire to obtain and keep Mid-States' money, but to relieve himself from the unceasing pressure of a demanding creditor which, if not satisfied, would force him out of business. The sole method whereby this could be accomplished was to shift the unpayable debt to Mid-States' shoulders, Lotz believing that because Mid-States was not pressing him at the moment (since he was current in his account with it) that he could get sufficient time by such device to obtain a loan or effect some other method whereby he could continue in business. In other words, he was admittedly grabbing at straws—he bought time with Mid-States' money. That his motivation was to obtain time rather than money for himself does not, of course, make his acts in breach of his fiduciary duties any less actionable; as pointed out above, the intent to defraud follows as a matter of law from his acts.

That Lotz did not actually enrich himself but ended up owing even more money than he had previously owed does not mean that he was not a conspirator. The purpose of his acts was to obtain time by creating a large indebtedness to Mid-States' and using its money to pay off American Fidelity and American Plan, which would give him no time. He created the debt and obtained the time. He knew, for example, that the Public Service Rewrite would result in an immediate loss to himself since he had to pay a 25% commission and received an advance commission of only 15%, but, although he had an immediate 10% loss, he did obtain some 60 days of time. Of course, even if he had not obtained that which he hoped to gain from the conspiracy, that fact alone would not prove or tend to prove

the absence of the conspiracy. That a thief steals an empty purse makes him no less a thief, and the cat's-paw who performs the crime and then is cheated of his ill-gotten gains by his colleagues is not rendered innocent by the fact that he failed to profit thereby. These principles seem so clear that no citation of authorities is deemed necessary, yet the trial court apparently gives great weight to the fact that Lotz did not enrich himself monetarily.

The fact that the court believed that the defendants never sat down together and entered into a specific prior agreement outlining the steps they would take and the objective thereof does not mean that no conspiracy existed. As the court said in *Ball v. Paramount Pictures, Inc.*, 169 F. 2d 317 (C.C.A. 3, 1948) at page 319, concerning the finding of the District Court that the defendants did not conspire together,

“* * * In so holding we think the lower court failed to accept the clear implications arising from appellees' acts and conduct. 'The picture of conspiracy as a meeting by twilight of a trio of sinister persons with pointed hats close together belongs to a darker age.' *William Goldman Theatres v. Loew's Inc.*, 3 Cir., 150 F. 2d 738, 743. As held in that case, conspiracy may be inferred when the concert of action 'could not possibly be sheer coincidence.' ”

In this case, it is clear that the efforts of all the defendants were devoted solely to paying off Lotz' indebtedness to American Fidelity as quickly as possible with funds obtained through the creation of debts to Mid-States while Lotz was insolvent. The obtaining of insurance business for Mid-States was of no importance whatsoever except as the obtaining of such insurance might generate funds with which Lotz' indebtedness to American Fidelity could be paid. Insurance was written without regard to proper rate structure or possible profit to

either Mid-States or Lotz, and without regard to any other matter except as to how quickly how much money could be forthcoming, which, in turn, could be diverted to American Fidelity. This end was admittedly the sole reason for Smead's employment by American Fidelity and American Plan and all the defendants participated in effecting that result.

The acts of the defendants were so successful that Lotz' indebtedness to American Fidelity of some \$240,000 was reduced to \$61,000 and his indebtedness to Mid-States increased from \$30,000 to approximately \$400,000 within a period of less than three months! When it became apparent that further funds would not be forthcoming quickly enough, the balance owing by Lotz to American Fidelity was finally liquidated by saddling Mid-States with the American Fidelity Rewrite, even though it was obvious to all that this transaction would result in direct pecuniary loss to Lotz and an indebtedness to Mid-States which he was unable to pay. Lotz was guaranteed a 20% commission by American Fidelity. No such guarantee would be realized by Lotz once the policies were rewritten by Mid-States. Not only was Lotz told that he would not obtain his 15% advance commission from Mid-States on this transaction, but as American Fidelity and American Plan knew, the loss ratio was such that Lotz would in all likelihood get no commission whatsoever from the transaction although he would have received 20% from American Fidelity if the Rewrite had not been made.

As has been demonstrated above, the action of Lotz in diverting to American Fidelity premiums arising from Mid-States' business, including the endorsement of checks received for the Public Service Rewrite and payment of substantially all the proceeds thereof to American Fidelity were clear breaches of his fiduciary duty to Mid-States. Even if the premiums were not trust funds in his hands,

there was no question but that Lotz' losses were accumulating even faster as a result of these rewrites and that Mid-States could not hope for payment. These facts were equally well known to American Plan and American Fidelity and their concerted action, in the words of the court in *Ball v. Paramount Pictures, Inc.* "could not possibly be sheer coincidence." The concerted action constituted a participation by American Fidelity and American Plan and their employee, Smead, in Lotz' breach of trust. That all who participate with an agent or other fiduciary in his breach of trust or who receive the benefits thereof with knowledge that his actions are in breach of his said duties, are equally liable with him, is well established. This is true regardless of the extent of the participation and regardless of whether or not the participant received the benefits thereof. As stated in 3 Scott on Trusts, Section 326.5, where the case of *Anderson v. Daley*, 38 App. Div. 505, 56 N. Y. Supp. 511 (1899) was being discussed:

"* * * It was held that the secretary was liable to the beneficiaries for participation in the breach of trust. It was immaterial that the defendant did not intend to cheat the beneficiaries and honestly intended that the fund should be restored at some future time. The court said that he was an active participant in the use of the trust money, and that he could not shield himself by the fact that he was an officer of the corporation and that the misuse of the trust fund was not for his own benefit but for the benefit of the corporation."

In the same section the case of *Proctor v. Norris*, 285 Mass. 161, 188 N. E. 625 (1934) was discussed where "the court held that it was immaterial that the defendant did not personally benefit by the transaction * * *."

The law of California is in complete accord with this well established principle. In *Anderson v. Thacher*, 76 Cal. App. 2d 50, 172 P. 2d 533 (1946), the fiduciary was a

real estate broker who made a secret profit on a transaction in which he, as agent, represented the plaintiff. Another defendant was a Margaret Johnstone, an ill woman over 75 years of age, whose name was used, with her knowledge, as the purported purchaser of the property. The court found that the defendant Johnstone did not receive any of the profits from the transaction. She was held equally liable with the agent Thacher for all the damages sustained by the plaintiff. The court pointed out that her conduct in allowing her name to be used as a "dummy" in the transaction was "illegal and in furtherance of the common scheme or design to achieve the unlawful purpose of the conspiracy. As heretofore pointed out, the liability of a conspirator is not dependent on whether such conspirator receives any of the benefits of the conspiracy." (P. 74.) In discussing the liability of still a third participant, Sackett, the court said, at page 72:

"This defendant occupied no fiduciary relation to plaintiff and his liability is dependent on whether he joined a conspiracy to defraud plaintiff through the making of a secret profit to be divided between plaintiff's fiduciary Thacher and defendant Sackett. If through fraud and conspiracy other defendants assisted defendant Thacher in violating his obligation to his principal by making a secret profit and by retaining the proceeds therefrom, they, as well as the fiduciary Thacher, are equally liable for all the consequences of the conspiracy, regardless of the extent of their participation or the share of the secret profits obtained by them. *It is not the conspiracy but the civil wrong which gives rise to the cause of action. If plaintiff is successful in proving an injury of the nature claimed she may recover in her action against all those who have united or cooperated in inflicting that injury.* (Revert v. Hesse, 184 Cal. 295 (193 P. 943).) And where, after the violation of a fiduciary obligation, an amount is found to be due from the

agent, judgment for the same amount may also be rendered against those proven to have fraudulently aided in the attempt of the fiduciary to obtain secret profits, although they themselves are not fiduciaries, and even though they receive no share of the profits (*Lomita Land & Water Co. v. Robinson*, 154 Cal. 36 (97 P. 10, 18 L. R. A. N. S. 1106)). * * *” (Italics supplied.)

In that case, as here, no specific “round table” conspiracy or agreement was found by the court, the conspiracy consisting of the concerted action and the cooperation of the defendants, the California court recognizing, as did the Federal court in *Ball v. Paramount Pictures, Inc.*, that the “meeting by twilight of a trio of sinister persons with pointed hats close together” is not a prerequisite of a conspiracy.

In this case all the defendants except Hart, did in fact benefit directly by Lotz’ breach of his fiduciary duty and their participation was for their own direct benefit. As previously stated, Lotz secured what he desired—time within which he could continue in business and stave off bankruptcy. American Fidelity and American Plan received payment of some \$240,000 of indebtedness, most of which would otherwise have been uncollectible. By the continuation of Lotz’ business Smead was assured of continued employment. Hart is in the same position as the corporate officer in the case of *Anderson v. Daley* referred to by Scott and he cannot “shield himself by the fact that he was acting as an officer of the corporation and that the misuse of the trust fund was not for his own benefit but for the benefit of the corporation.”

In *Duckett v. National Mechanics’ Bank of Baltimore*, 86 Md. 400, 38 A. 983, 39 L. R. A. 84 (1897), the court said:

“There can be no dispute that as a general prin-

ciple all persons who knowingly participate or aid in committing a breach of trust are responsible for the wrong, and may be compelled to replace the fund which they have been instrumental in diverting. Every violation by a trustee of a duty which equity lays upon him, whether wilful or fraudulent, or done through negligence, or arising through mere oversight or forgetfulness, is a breach of trust; 2 Pom. Eq. Jur. § 1079. There is in such instances no primary or secondary liability as respects the parties guilty of, or participating in, the breach of trust; because all are equally amenable. * * * Whoever knowingly aided him, or knowingly participated with him in misapplying that fund, is by reason of so aiding and so participating, equally liable with him to make the fund good by restoring it to the trust estate; 2 Pom. Eq. Jur. § 1079. * * *"

This principle is so well established that there is no need to belabor the point by citing additional authorities. As the Supreme Court of the United States said in *Smith v. Ayer*, 101 U. S. 320 (1880) at page 327:

"The adjudications in support of this doctrine are very numerous. The doctrine pervades the whole law of trusts."

Plaintiff in its complaint charged that American Fidelity, American Plan and Hart conceived and prepared the plan whereby Mid-States' funds were to be diverted to American Fidelity and that this plan was communicated to and agreed upon with defendants Lotz and Smead at the meeting of August 13, 1951, all as shown by the statements of Lotz and Smead. Plaintiff believes that it has proved the specific allegations of the complaint and that the findings of the court to the contrary are clearly erroneous. However, as pointed out above, even if there were no such specific prior agreement, the concerted action of the defendants in which all participated in Lotz' breach of his fiduciary duties constitutes proof of

a conspiracy to defraud and on this proof Mid-States is entitled to recover against the defendants since it is well established that under the Federal Rules of Civil Procedure every party should receive the relief to which it is entitled upon any theory applicable to or sustained by the facts as established at the trial.

Thus, in *Hamill v. Maryland Cas. Co.*, 209 F. 2d 338 (C. A. 10, 1954), suit was instituted and prosecuted on the theory that the two defendants were partners and, therefore, jointly liable to indemnify the plaintiff who had incurred liability as surety on a bond on which defendant Gunnell was principal. The court rejected the partnership theory in its entirety, but gave judgment for the plaintiff in a reduced amount against Hamill on the Gunnell bond on the basis that the plaintiff had become surety on the bond in reliance upon a contract made between the two defendants which was made for plaintiff's benefit. On appeal by Hamill from the judgment, the Court of Appeals pointed out that

“Of course Maryland may recover upon any theory legally sustainable under established facts regardless of the demand in the pleadings. See Rule 54(c) F. R. C. P., Rule 15(b) F. R. C. P., 28 U. S. C. A.; *Garland v. Garland*, 10 Cir., 165 F. 2d 131; *Preas v. Phebus*, 10 Cir., 195 F. 2d 61; *Blazer v. Black*, 10 Cir., 196 F. 2d 139, 147; *Schoonover v. Schoonover*, 10 Cir., 172 F. 2d 526. * * *” (page 340).

To the same effect is *Garland v. Garland*, 165 F. 2d 131 (C. C. A. 10, 1947), where a suit was brought for rescission and cancellation of a contract, but the court gave judgment for the plaintiff consisting of specific performance and damages for breach. On appeal by defendants, the judgment was affirmed, the court ruling that

“* * * Under the wide sweep of Rule 54(c), *supra*, it was within the jurisdiction and power of the

court to grant plaintiff equitable relief by way of specific performance of the contract relating to the possession and use of the residential premises on the Orchard Ranch as well as the furniture and furnishings reasonably necessary to that end, even though she sought rescission and cancellation. Cf. *Truth Seeker Co. v. Durning*, 2 Cir., 147 F. 2d 54; *Ring v. Spina*, 2 Cir., 148 F. 2d 647, 160 A. L. R. 371. * * * (page 133).

The case of *Blazer v. Black*, 196 F. 2d 139 (C. A. 10, 1952), is particularly apropos in this respect. In that case, the plaintiff, a former stockholder of a corporation, sought damages against the defendant, a former director and officer of the corporation, resulting from the defendant's fraudulent scheme whereby defendant acquired plaintiff's stock at less than its real value by virtue of concealing, in violation of his fiduciary duty to disclose the same, certain material facts relating to the true financial condition of the corporation, which concealment was part of the fraudulent scheme. Allegations of fact with respect to what transpired following the sale of plaintiff's stock were stricken by the trial court and an amended complaint not setting forth these transactions was filed, which, however, contained allegations of the fraudulent scheme, the fiduciary relationship, the fraudulent representations and the concealment of material facts. The trial court directed a verdict for the defendant and entered a judgment thereon. On appeal the judgment was reversed, the Court of Appeals pointing out that

“* * * The court was not warranted in dismissing the action unless upon the facts and law he had shown no right to relief in law or equity. Rule 54(c). *Preas v. Phebus*, 10 Cir., 195 F. 2d 61; *Schoonover v. Schoonover*, 10 Cir., 172 F. 2d 526; *Garland v. Garland*, 10 Cir., 165 F. 2d 131; *Hawkins v. Frick-Reid Supply Corp.*, 5 Cir., 154 F. 2d 88; *Kansas City, St. L. & C. R. Co. v. Alton R. Company*, 7 Cir., 124 F. 2d 780.

No. 14,695

United States Court of Appeals
For the Ninth Circuit

MID-STATES INSURANCE COMPANY, a corporation, and THE ANGLO CALIFORNIA NATIONAL BANK OF SAN FRANCISCO,
Appellants,

vs.

AMERICAN FIDELITY AND CASUALTY COMPANY, INC., a corporation, AMERICAN PLAN CORPORATION, a corporation, MARK HART, JOSEPH LOTZ, RALPH L. SMEAD and L. SUDEKUM,
Appellees.

Appeal from the United States District Court for the
Northern District of California,
Southern Division.

BRIEF FOR APPELLANT
THE ANGLO CALIFORNIA NATIONAL BANK
OF SAN FRANCISCO.

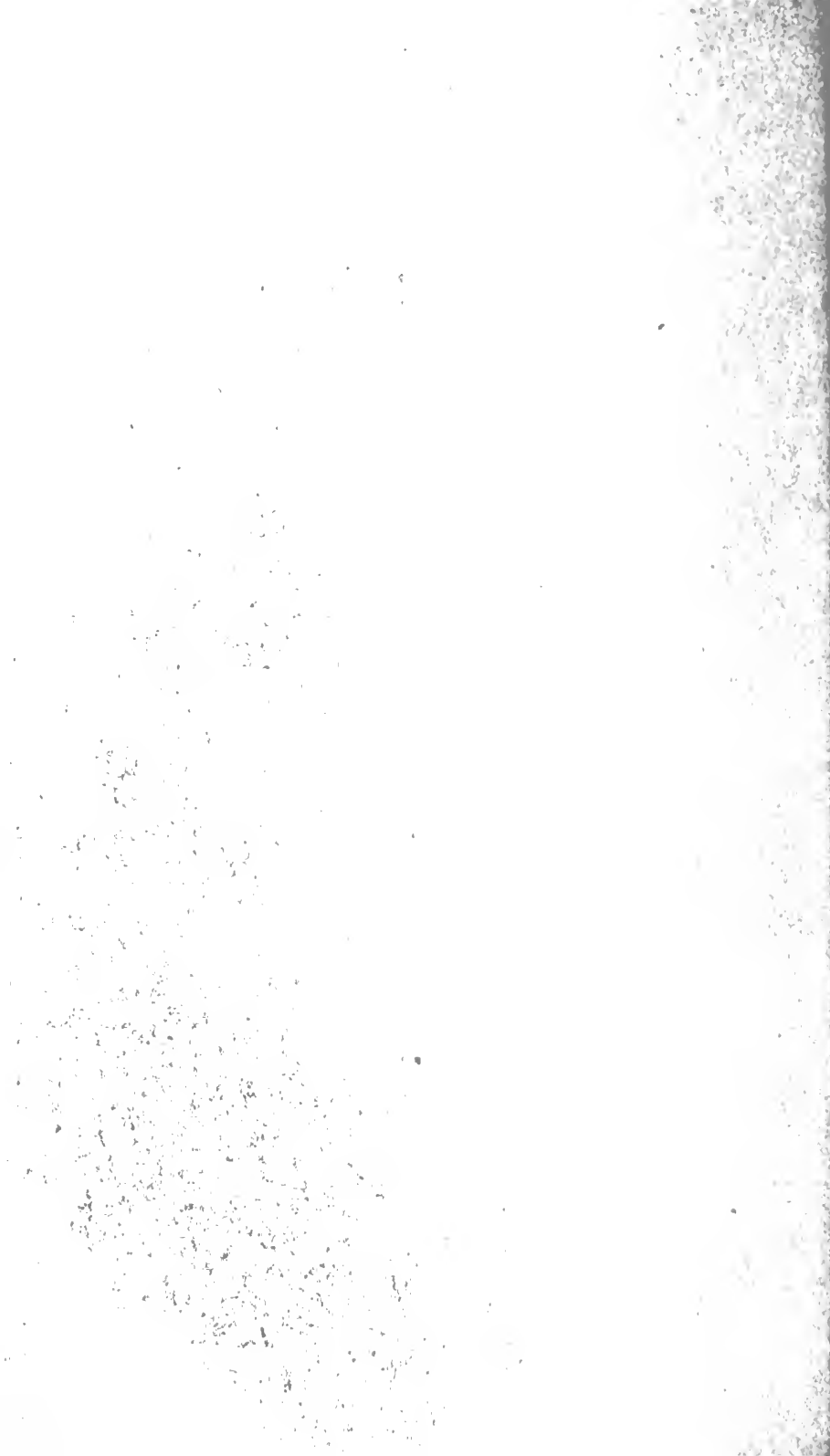
SEVERSON, MCCALLUM & DAVIS,
ALMON B. MCCALLUM,
NATHAN R. BERKE,

38 Sansome Street, San Francisco 4, California,

Attorneys for Appellant, The Anglo PAUL P. O'BRIEN, CL
California National Bank of San Francisco.

FILE

SEP 15 1955



Subject Index

	Page
A. Statement of the pleadings and facts supporting jurisdiction	1
B. Statement of the case	3
1. Facts	3
2. Questions Involved	21
C. Specification of errors.....	21
D. Argument	24
1. The principal is liable for the acts of the agent.....	24
2. American Fidelity received the moneys from Lotz with knowledge that they were trust funds for the benefit of Mid-States.....	30
(a) The moneys were trust funds held by Lotz for the benefit of Mid-States	30
(b) American Fidelity knew it was being paid with trust funds	31
3. American Fidelity, having taken the public service premiums with notice of their true ownership, holds them as a constructive trustee and must make restitution	33
4. The conspiracy	35
E. Conclusion	37

Table of Authorities Cited

Cases	Pages
California Auto Court Assn. v. Cohn (1950), 98 C.A. 2d 145	35
Dow v. Swain (1899), 125 Cal. 674.....	26
Fernelius v. Pierce (1943), 22 Cal. 2d 226.....	25
Fletcher v. Allen (1921), 51 Cal. App. 774.....	34
Garrison v. Edward Brown & Sons (1944), 25 Cal. 2d 473..	3
Jenness v. Moses Lake Development Co. (Wash. 1951), 234 P. 2d 865.....	26
Jones v. Bankers Life Co. (1942), 131 F. 2d 989.....	25
Lahay v. City National Bank (Colo. 1890), 25 Pac. 704.....	26
Maloney v. Rhode Island Ins. Co. (1953), 115 C.A. 2d 238..	30
Mathews v. Wilson (1918), 38 Cal. App. 148.....	25
Neff v. Engler (1928), 205 Cal. 484.....	26
Newcomb v. Title Guarantee and Trust Co. (1933), 131 Cal. App. 329	25
Ralston Purina Co. v. Novak (1940), 111 F. 2d 631.....	25
Rummer v. Throop (Wash. 1951), 231 P. 2d 313.....	26
Seeger v. Odell (1941), 18 Cal. 2d 409.....	26
Wells v. Lloyd IV (1936), 6 Cal. 2d 70.....	28, 29

Codes

California Civil Code, Section 2243.....	33
California Insurance Code, Section 1730.....	30, 31
United States Code, Title 28, Section 1291	3

Texts

23 Am. Jur., 970, Section 161.....	26
25 Cal. Jur. 222.....	32
17 Ops. Cal. Atty. Gen. 1.....	30
Restatement of Restitution:	
Section 167	34
Section 174, comment a.....	34

United States Court of Appeals For the Ninth Circuit

MID-STATES INSURANCE COMPANY, a corporation, and THE ANGLO CALIFORNIA NATIONAL BANK OF SAN FRANCISCO,

Appellants,

vs.

AMERICAN FIDELITY AND CASUALTY COMPANY, INC., a corporation, AMERICAN PLAN CORPORATION, a corporation, MARK HART, JOSEPH LOTZ, RALPH L. SMEAD and L. SUDEKUM,

Appellees.

Appeal from the United States District Court for the
Northern District of California,
Southern Division.

BRIEF FOR APPELLANT THE ANGLO CALIFORNIA NATIONAL BANK OF SAN FRANCISCO.

A. STATEMENT OF THE PLEADINGS AND FACTS SUPPORTING JURISDICTION.

This is an appeal from a judgment of the United States District Court for the Northern District of

California, Southern Division (T. 141)¹, rendered in favor of the appellees in two actions numbered 31,311 and 31,496 in the said District Court.

Action No. 31,311 (referred to as the "Bank Case") was brought by Mid-States Insurance Company, an Illinois corporation, against Anglo Bank, a national banking association (T. 3), praying judgment for \$99,021.10 in connection with 9 checks payable to Mid-States, endorsed by the appellees Joseph Lotz and Ralph Smead and deposited by them in Lotz' Trust Account with Anglo Bank. In this same action, Anglo Bank filed a third party complaint against the appellees (T. 65).

Action No. 31,496 was commenced by Mid-States against American Fidelity and Casualty Company, a Virginia corporation, The American Plan Corporation, a New York corporation, Mark Hart, L. Sudekum and John Will, residents of New York, and Joseph Lotz and Ralph Smead, residents of California (T. 8). In this action Anglo Bank filed a complaint in intervention against the appellees (T. 50).

Subsequently Anglo Bank moved to consolidate both actions for trial and the District Court ruled that the issues presented in the complaint of Mid-States in Action No. 31,311, dealing with the authority of Joseph Lotz to endorse checks payable to Mid-States, be tried separately, and that the issues raised by the third party complaint of Anglo Bank be tried with Action No. 31,496.

¹References to the printed transcript of record are designated "T.".

In both actions Anglo Bank prayed for judgment against the appellees for all sums that might be adjudged against Anglo Bank in favor of Mid-States.

On December 29, 1953, in action 31,311, judgment was entered for Mid-States against Anglo Bank in the sum of \$37,500.00.

The opinion of the Court below, decreeing that Anglo Bank take nothing by its complaint in intervention or by its third party complaint was issued on October 11, 1954 (T. 97), and the judgment pursuant thereto was entered on December 17, 1954 (T. 141). On December 27, 1954, appellants filed a motion for new trial, for modification of findings of fact and conclusions of law, and to alter and amend judgment (T. 142) which was denied on January 24, 1955 (T. 157). Notice of appeal to this Court was filed on February 7, 1955 (T. 157).

Jurisdiction of this Court is founded upon U. S. Code Title 28, §1291 which gives this Court jurisdiction over appeals from all final decisions of the District Court of the United States.

B. STATEMENT OF THE CASE.

1. Facts.

Mid-States and American Fidelity are insurance companies writing automobile insurance. American Plan is the manager of American Fidelity. Mr. Lotz was the general agent in California for both Mid-States and American Fidelity having been appointed as such by Mid-States in May, 1947 (T. 176), and by

American Fidelity in November, 1950. Mr. Smead was general manager for Mr. Lotz at his office in Oakland. In August, 1951, American Plan appointed Mr. Smead its representative in connection with the payment of monies owing by Mr. Lotz to American Fidelity and gave him full authority regarding the financial affairs of Mr. Lotz. In January, 1952, American Plan employed Mr. Smead and in June or July, 1952, appointed him as its Pacific Coast Manager (T. 818, 901). Mr. Hart is President and Messrs. Sudekum and Will officials of American Plan.

Mr. Lotz' contracts with American Fidelity and Mid-States were substantially the same in principle. Both authorized him to write insurance and collect premiums, and each required him to report daily the insurance written and to pay the premiums within a stated period. The arrangements are known as retrospective plans because Mr. Lotz' final participation or commissions depended upon the loss experience of his writings.

During the year, 1950, Mr. Lotz' average monthly premium volume with Mid-States was approximately \$14,000.00—\$15,000.00 per month (T. 188). After his appointment in November, 1950, as agent for American Fidelity, Mr. Lotz wrote most of his business in that company.

By August, 1951, Mr. Lotz owed American Fidelity approximately \$247,000.00 and Mid-States approximately \$30,000.00 for premiums. Because of this, Mr. Hart became concerned over Mr. Lotz' financial condition and called him to New York to discuss the matter.

About August 10, 1951, Messrs. Lotz and Smead met with Messrs. Hart, Sudekum and Will in New York. At this meeting they discussed Mr. Lotz' indebtedness, his assets, how the debt owing American Fidelity could be paid, and the writing of future business by Lotz in Mid-States.

Following this meeting, Mr. Smead returned to Oakland and Mr. Lotz went to Chicago where he received a new contract from Mid-States eventually dated September 1, 1951. This new contract, unlike the earlier one, specifically provided that premiums collected by Mr. Lotz for Mid-States were trust funds.

After August 10, 1951, practically all insurance written by Mr. Lotz was written in Mid-States.

With the return to Oakland of Messrs. Lotz and Smead following their meeting with Mr. Hart in New York, there commenced a concerted drive to obtain funds to pay to American Fidelity.

Shortly after the New York meeting Messrs. Hart, Lotz and Smead learned that Public Service Insurance Company wished to give up some of its writings and on August 16, 17 and 18 they discussed the possibility of Lotz taking over this insurance and rewriting it with Mid-States (T. 443, 444).

On August 20, 1951, Messrs. Hart and Feller arrived in Oakland (T. 445), requested Mr. Smead to call Public Service to make sure they could take over the block of business under discussion (T. 447), and on the evening of that day an arrangement was made with Public Service whereby Lotz would rewrite in Mid-States the insurance being cancelled by Public

Service and receive from Public Service approximately \$150,000.00 in premiums less a 25% commission to be paid to Russell and Bond (T. 849).

Two days later on August 22, 1951, Mr. Lotz and American Fidelity and American Plan entered into a written agreement (T. 458) providing as follows:

“The Manager (American Plan) hereby appoints Ralph L. Smead as its representative and Lotz agrees that the said representative shall have full authority over the finances of the company (American Fidelity) and in connection with the matters referred to herein subject to instructions of the Manager (American Plan).”

and providing further that (T. 457):

“commencing immediately all premiums received by Lotz will be deposited directly to the account of the Company (American Fidelity) at the Central Bank, Oakland.”

About the same time Mr. Hart gave Mr. Smead a letter dated August 17, 1951 (T. 465), providing:

“Under even date memorandum of agreement has been executed by Joseph Lotz which in part stipulates that you will serve as the representative of American Plan Corporation with respect to the ultimate liquidation of all monies referred to in Paragraphs 1 and 2 (\$247,000.00 owing by Lotz to American Fidelity (T. 456)) in said agreement.

As the representative of this corporation you have full authority to deposit to the account of The American Fidelity and Casualty Company at the Central Bank in Oakland all monies received by Lotz . . . You are to have full and supreme au-

thority regarding financial affairs of Joseph Lotz, subject to instructions that may be transmitted to you from time to time by The American Plan Corporation, and in the event that you are prevented from performing your responsibility in any respect it will be your duty to notify immediately The American Plan Corporation.

In consideration of the proper performance of your duties as representative and in the event the items referred to in Paragraphs 1 and 2 of said agreement are completely liquidated by September 15, 1951, you are to receive a fee from us in the sum of \$1,000.00."

Mr. Hart testified that he was interested in keeping Mr. Lotz in business (T. 904).

"A. Mr. Garrison, the insurance business is a gold fish bowl in that everybody inquires of other companies the status of agents. Mr. Lotz represented, in addition to Mid-States, life insurance companies and other insurance companies, and it was within the realm of possibility that he would apply to other companies for representation. *I was interested in keeping Mr. Lotz in business to collect our money*, and, among other things, I felt very sorry for Joe Lotz, who I have always considered to be extremely honest, and for that reason I wanted to be certain that our Treasurer told the truth, namely, that he was not delinquent and not in any way besmirch him or spoil his chances with any other company he may represent."

To keep Mr. Lotz in business it was necessary to make sure that no one would learn of his true financial condition and this was accomplished by a direc-

tive from Mr. Hart to his company on August 29, 1951.

“In closing, you are instructed to inform anyone who inquires that Joe Lotz is up to date in his accounts with us and is not delinquent. This is not only extremely important, but it is actually true as Joe Lotz’ May balance is technically paid and his June balance is not due until September 15, 1951” (T. 903).

The “technical payment” of the May balance was accomplished by a \$38,000.00 loan to Lotz, and concerning this credit Mr. Hart testified:

“Q. It did permit you to say to anyone if they were to inquire the account with Mr. Lotz was current?

A. Yes, it did.” (T. 903).

This planning to be able to report to anyone inquiring that Lotz was current at a time when Mr. Hart was concerned over Lotz’ indebtedness to his company (T. 845), when Mr. Hart knew that Mr. Lotz could not pay his bills (T. 832), when Mr. Hart knew that Mr. Lotz was short of money (T. 859), and when Mr. Hart knew that Mr. Lotz was in need of borrowing money (T. 763), indicates the deliberate planning to keep Lotz in business long enough for Lotz to get possession of enough money to pay American Fidelity.

And while Mr. Hart was taking steps to keep Mr. Lotz in business by representing to others that he was current with American Fidelity, Mr. Hart was telling Mr. Lotz that he was delinquent and threatened him.

“Tomorrow is deadline with \$190,000.00 due” (T. 482).

We are considerably disturbed over your failure to live up to agreement to liquidate our balances by September 15 (T. 484).

As frankly, am deeply concerned about the attitude that will be assumed by the company if their auditors uncover the delinquency (T. 487).

. . . will be obliged to take drastic steps immediately (T. 488).

. . . will take necessary action including advices to insurance department and other local authorities” (T. 488).

Such threats of “drastic steps” and “advices to insurance department and other local authorities” are not consistent with Mr. Hart’s confessed feelings of feeling “very sorry for Joe Lotz” and of always considering him “to be extremely honest” and that he did not want his company “in any way to besmirch him or spoil his chances with any other company”; nor are the many statements that Mr. Lotz is delinquent and has failed to live up to his agreement consistent with informing anyone upon inquiry that Joe Lotz is current.

As soon as the arrangements with Public Service were made Messrs. Lotz and Smead, without having advised Mid-States, proceeded to rewrite the business with Mid-States. The first check they received from Public Service, which was received after Mr. Smead was appointed the agent of American Plan, was made payable to Joseph Lotz but Public Service stopped

payment on it and reissued the check payable to Mid-States. When Messrs. Lotz and Smead attempted to endorse and deposit checks payable to Mid-States the Central Bank requested a resolution from Mid-States authorizing Mr. Lotz to endorse its checks, and on August 27, 1951, Mr. Lotz wrote Mid-States as follows (T. 287):

“Now, Gerald, this bank that I am doing business with (Central Bank) wants a resolution from your Board of Directors verifying that I have authority to endorse premium checks payable to Mid-States Insurance Company for deposit in my trustee account. I would appreciate it very much if you would send this authorization to me by return mail.”

When the Public Service funds were not transferred to the account of American Fidelity, Mr. Hart on August 30, 1951, teletyped Messrs. Lotz and Smead inquiring about them (T. 476) and in reply Mr. Smead answered:

“checks are all payable to Mid-States Insurance Company awaiting authorization required to deposit . . .”(T. 476).

to which Mr. Hart replied (T. 477):

“Understood Public Service checks were to be made payable to Lotz. Has this procedure been changed?”

On this same day Messrs. Hart and Smead had a telephone conversation during which Mr. Smead told Mr. Hart they were expecting to receive \$30,000.00 from Public Service and would pay it to American

Fidelity (T. 478), and on August 31, 1951, Mr. Hart teletyped Mr. Smead as follows:

“Has check for \$30,000.00 been deposited in AFC account yet?” (T. 478).

At the trial Mr. Hart testified (T. 805) concerning this \$30,000.00 as follows:

“Q. Did you know where the \$30,000.00 was coming from?”

A. He was supposed to be in the process of collecting on behalf of Mid-States the premiums applicable to the Public Service business.”

Consequently, the situation on August 31, 1951, was that Messrs. Hart, Lotz and Smead were planning to pay to American Fidelity premiums collected for Mid-States on the Public Service business but were unable to cash the checks at Central Bank because Lotz had no authority to endorse them.

The statements between them of the day before (August 30) as follows: “awaiting authorization required to deposit” (T. 477) and “if we do not receive authorization right away from them we can have re-issued” (T. 477) illustrate their acute awareness of the lack of authority to endorse and of the problem of how to cash the Public Service checks payable to Mid-States and get possession of the funds.

To accomplish this purpose Mr. Lotz, on August 31, 1951, opened an account with Anglo California National Bank. At the trial he testified (T. 670):

“Q. And at the time you opened the account, Mr. Lotz, you told the Bank you were going to

deposit checks made payable to the Mid-States Insurance Company, didn't you?

A. And other companies.

Q. And other companies, yes. And did the man from the Anglo Bank ask you if you had authority to endorse checks made payable to Mid-States Insurance Company?

A. Yes.

Q. And you told him you did, didn't you?

A. Yes."

Mr. Smead also testified that he told the Anglo Bank that Mr. Lotz had authority to endorse checks payable to Mid-States (T. 540).

"Q. Have you ever had any conversation with anyone from the Anglo Bank regarding Mr. Lotz' authority to endorse checks made payable to Mid-States Insurance Company?

A. Yes, sir.

* * * * *

The Court. Fix the time.

The Witness. In the early part of September, the exact date I don't know. I had a conversation in person and also I had telephone conversations from those.

* * * * *

Q. What was said?

A. The gentleman asked for, asked if Mr. Lotz had authority to deposit checks payable to insurance companies and I advised him that he did. On, I believe, the second occasion, or on a different occasion, they asked that—asked where that was contained, and I said it was in his general agency agreement with his companies. They asked for copies, or the original contracts, which

we promised to furnish—I believe Mr. Lotz was present at one or two of those conversations—which we did promise that we would furnish the bank.”

And Mr. Hart admits that when Mr. Smead made these representations to Anglo Bank he was acting as his agent (T. 909).

“Q. And you have heard Mr. Smead so testify that on several occasions he told the Anglo Bank Mr. Lotz had authority to endorse checks made payable to Mid-States?

A. I heard that.

Q. Now, at the time Mr. Smead was telling the Anglo Bank that Mr. Lotz had authority to endorse checks, he was your agent, wasn't he, acting under this agreement of August 22nd?

A. Did you say Mr. Smead was our agent?

Q. Yes, sir.

A. Yes.

(Interruption by counsel.)

Q. I believe the answer to the last question was that at that time Mr. Smead was acting as your agent?

A. Yes.”

About September 5, 1951, five days after the account was opened with Anglo Bank and before Messrs. Lotz and Smead endorsed and deposited any Mid-States checks therein, they received an answer from Mr. Hatfield explaining why Mid-States did not wish to give Mr. Lotz authority to endorse its checks, saying in part (T. 289):

“After being burned as we were on that occasion I am sure you will understand why we are most hesitant to grant such authority again.”

Two days later, on September 7, 1951, Messrs. Lotz and Smead endorsed and deposited the first Public Service check with Anglo Bank payable to Mid-States in the amount of \$5,547.25.

On the next day, September 8, 1951, understanding his lack of authority and accepting the refusal of Mid-States to authorize him to endorse its checks, Mr. Lotz, on the stationery of American Fidelity Co. wrote Mr. Hatfield in part as follows (T. 291):

“Now, regarding my request for authority to endorse checks made payable to Mid-States Insurance Company we do not have very many like this, and those that we do have, we can have them made payable direct to me.”

Two days later, on September 10, 1951, Mr. Hatfield again wrote Mr. Lotz stating (T. 291):

“Under date of September 5th I wrote you on the subject of granting you authority to endorse premium checks which are made payable to Mid-States. I overlooked giving you the most important reason in that letter as to why we are reluctant to grant you the authority you requested. That reason is that under our blanket bond we do not have any protection if we grant authority to any person not on our payroll to endorse checks.”

Mr. Smead knew at all times and while he was the agent of American Plan about the letters from Mid-States denying Mr. Lotz authority to endorse its checks. At the trial he testified (T. 538):

“Q. In other words, you knew that on or about August 27, Mr. Lotz wrote a letter to Mr. Hatfield requesting authority to endorse checks made payable to Mid-States?

A. Yes, sir.

Q. And you knew on or about September 5 that Mr. Hatfield had replied, refusing to give him such permission?

A. Yes, sir.

Q. And you knew also that a further following up of that letter was written by Mr. Hatfield about September 10?

A. Yes, sir.”

And he knew about these letters during the period when he was telling the Anglo Bank that Mr. Lotz had authority to endorse checks payable to Mid-States (T. 541).

“Q. And over what period of time did these conversations extend?

A. Oh, a period of probably three weeks.

Q. Commencing with the first part of September?

A. Still—I would say from the, possibly, the tenth of September for a period of three weeks thereafter.”

Neither Mr. Smead nor Mr. Lotz ever told the Anglo Bank about these letters from Mid-States denying Lotz authority to endorse its checks (T. 542 and T. 671). Instead they represented that Mr. Lotz did have such authority and endorsed the checks (T. 671).

“Q. After you received the two letters which I have just exhibited to you, you continued to

endorse checks payable to Mid-States and deposited them in the Anglo Bank, didn't you?

A. Yes."

During the period from September 7, 1951, to October 15, 1951, which is after Mr. Smead was appointed the agent of American Plan, and after Mid-States had refused Lotz authority to endorse its checks, and which corresponds with the period during which Mr. Smead was telling the Anglo Bank that Mr. Lotz did have authority to endorse checks payable to Mid-States (T. 541), Messrs. Smead and Lotz endorsed 5 checks from Public Service payable to Mid-States, totaling \$94,136.69 and deposited them with the Anglo Bank. As the agent of American Plan Mr. Smead received instructions from Mr. Hart on the disposition of these funds (T. 547).

"Q. Did you ever discuss with anyone from the American Fidelity as to what you were doing with the funds from the Public Service when they came in?

A. Yes, sir.

Q. With whom did you have such a conversation?

A. With Mr. Hart.

Q. When did that conversation take place?

A. The conversation took place during his visit of August 20.

Q. What did he say?

A. And also I had conversations at later times. He instructed that the funds received from Public Service be deposited in Mr. Lotz' trustee account, then withdrawn payable to American Fidelity and Casualty Company and deposited in the

American Fidelity and Casualty account, Central Bank, in Oakland."

The instructions correspond with the written instructions given by Mr. Hart to Mr. Smead in the letter dated August 17, 1951 (T. 465).

After cashing the Public Service checks Messrs. Lotz and Smead paid the money to American Fidelity and advised Mr. Hart (T. 908), who testified:

"Q. Mr. Hart, when deposits were made in the American Fidelity account you were sent a copy of the deposit slip weren't you?

A. Yes.

* * * * *

Q. Did that come from Mr. Smead or Mr. Lotz, or did it come from the Bank?

A. I think it came from Mr. Smead."

To illustrate the payment of the Public Service monies to American Fidelity (which the trial Court found to be true, T. 130), Mr. Marks, called as a witness for American Fidelity, testified that on September 15, 1951, Mr. Lotz had \$74,000.00 in the account with Anglo Bank of which \$67,500.00 came from one Public Service check, and that on the day following, \$60,000.00 was paid to American Fidelity (T. 1091). He also testified that on September 26, 1951, Mr. Lotz had \$16,000.00 in the account with Anglo Bank after depositing a check from Public Service for \$11,250.00 and that on that day \$15,000.00 was paid to American Fidelity (T. 1092). Undeniably in these two payments alone, Messrs. Lotz and Smead paid at least \$71,250.00 of Mid-States money to American Fidelity as a re-

sult of their endorsing these two Public Service checks payable to Mid-States. This substantiates Mr. Smead's testimony when he said:

"However, I believe that the major portion of it was paid to the American Fidelity and Casualty Company" (T. 496).

And when he said:

"I know that most all of the funds that were received by Lotz during that time were paid to the American Fidelity and Casualty Company" (T. 481).

Mr. Hart admittedly informed of the Public Service transaction, the manner in which the checks were written, and the problem of endorsing them must have known that the monies he was receiving were premiums for insurance written in other companies and Mr. Smead so advised him by teletype on September 14, 1951 (T. 482).

"Q. Reads to Ralph Smead from Mark Hart: 'What is amount deposited today.

Minute OK Will not make Deposit until after three o'clock today. Have approx. \$5,000 regular and will make transfer from other funds.'

A. Yes, sir. I recall this message.

Q. What other funds did you mean when you used that expression?

A. The 'regular' meant funds received for regular American Fidelity and Casualty premiums. Other funds would be from other companies.

Q. Public Service or anyone?

A. Public Service or anyone, yes, sir."

On the subject of his knowledge of the source of the monies paid to American Fidelity Mr. Hart testified (T. 922) :

“Q. And it had to come either from your collections or your sub-agents writing for you, or his commissions or his borrowings or somebody else’s premiums?

A. Came from various sources.”

Mr. Hart also admits that his company had no right to participate in the Public Service monies (T. 877) :

“Q. Would it be true, then, that your company had no right to participate in any of the premiums paid in that insurance?

A. Of course not.”

In addition to the Public Service checks Messrs. Lotz and Smead endorsed and deposited 3 other checks payable to Mid-States totalling \$3,284.65 (Find. XVIII, T. 136).

By the end of October, 1951, Lotz’ indebtedness to American Fidelity was reduced from approximately \$247,000.00 to approximately \$61,000.00 (Find. III, T. 118, Find. XIV, T. 133). This reduction of approximately \$186,000.00, paid in approximately 2½ months, and accompanied by threats from Mr. Hart of taking “drastic steps” (T. 488) and of taking “necessary action including advices to insurance department and other local authorities” (T. 488), was accomplished with premiums on insurance written in Mid-States and substantially with the Public Service monies which Messrs. Lotz and Smead received by representing to the Anglo Bank that Lotz had authority to

endorse the checks. The balance of \$61,000 was paid by having Mid-States take over the insurance upon cancellation by American Fidelity.

In December, 1951, Messrs. Lotz and Smead told Mid-States that at the meeting in August in New York it was understood and agreed that in order to pay American Fidelity they would have to use premiums collected on insurance written in another company, that using Mid-States for this purpose was discussed, and gave written statements of the matters discussed to effect payment to American Fidelity (T. 253 and T. 653).

Upon receipt of these statements Mr. Titus, President of Mid-States, called Mr. Hart who came to Chicago in December, 1951, to discuss the matter. At the trial Mr. Hart testified about these statements as follows (T. 899):

“Q. Well, didn't Mr. Titus tell you about them when you met him in Chicago at that meeting?

A. He told me he had them.”

After being told about these statements, and although testifying at the trial that he believed that Mr. Smead had deliberately told untruths about him and American Plan (T. 901), Mr. Hart, nevertheless, hired Mr. Smead in January, 1952, and six months later appointed him Pacific Coast Manager of American Plan (T. 902).

2. Questions Involved.

The questions involved in this case are as follows:

(1) Since Messrs. Lotz and Smead were the agents of American Plan and American Fidelity, are not American Plan and American Fidelity, as principals, responsible for the acts of their agents in falsely representing to Anglo Bank that Lotz had authority to endorse the checks payable to Mid-States?

(2) Are American Plan and American Fidelity entitled to enrich themselves and benefit by the false representations of their agents to the damage and injury of an innocent third party?

(3) Where the parties have agreed in writing by the agreement dated September 1, 1951, that premiums are collected as trust funds and the agent without knowledge of the principal violates the agreement can there be a "course of dealing" altering the written agreement?

(4) Can a party keep funds knowing that he is being paid with trust funds?

(5) What is required to prove a conspiracy?

C. SPECIFICATION OF ERRORS.

(1) Although the trial Court found (1) that Mr. Smead was the agent of American Plan (T. 131), (2) that Mr. Lotz represented and warranted to Anglo Bank that he had authority to endorse checks payable to Mid-States (T. 136), (3) that Anglo Bank believed that Mr. Lotz was authorized to endorse checks

payable to Mid-States (T. 137), (4) that the checks Mr. Lotz endorsed represented premiums on insurance written for Mid-States (T. 138), and the uncontradicted evidence showed (5) that Mr. Lotz had written asking Mid-States for authority to endorse its checks (T. 287) and in 2 separate letters was denied such authority (T. 289, T. 291), one of which he acknowledged (T. 291), (6) that Mr. Smead admitted he also represented to Anglo Bank that Mr. Lotz had authority to endorse Mid-States' checks even while knowing about the letters from Mid-States denying such authority (T. 540, 538, 541), and (7) that Mr. Hart testified that while Mr. Smead was making these representations to Anglo Bank he was his agent (T. 909), the trial Court held that Mr. Lotz believed he had authority to endorse Mid-States' checks and that neither he nor Mr. Smead intended to deceive the Anglo Bank (T. 139); notwithstanding that Messrs. Lotz and Smead endorsed and deposited the checks after actual receipt from Mid-States of letters denying Mr. Lotz authority to endorse its checks. It is respectfully submitted that where one has asked for authority to do a specific act and after being denied the authority nevertheless proceeds to perform the act, that it is error to find that such party believed "he had such authority and did not intend to deceive" (Find. XXIII, T. 139).

(2) Although the uncontradicted evidence showed that Messrs. Lotz and Smead endorsed and deposited checks payable to Mid-States with knowledge that they had no authority to do so, the trial Court found

that they were not guilty of any fraud or deceit (Find. XXIV, T. 139). It is respectfully submitted that where one represents and warrants he has authority to do a specific act knowing he has no authority that it is error to find such party not "guilty of any fraud or deceit."

(3) Although the trial Court found (1) that representations and warranties were made to the Anglo Bank concerning Lotz' authority to endorse Mid-States' checks (Find. XVIII, T. 136), (2) that Anglo Bank believed Mr. Lotz was authorized to endorse Mid-States' checks (Find. XX, T. 137), (3) that judgment was entered against Anglo Bank in the sum of \$37,500.00 in connection with these checks endorsed by Messrs. Lotz and Smead, and (4) that the uncontroverted evidence showed these representations were made at times when Messrs. Lotz and Smead knew they had no such authority and after being specifically denied such authority, the trial Court held that the Anglo Bank had not been damaged (Find. XXIII, T. 138). It is respectfully submitted that where representations are made, believed and relied upon to one's damage, and are known to be false by the parties making them, that it is error to find that the party acting on such false representations "has not been damaged as a result of any act done, permitted, directed or suffered by" the party making such representations (T. 138).

(4) Although the trial Court found that the new agreement of September 1, 1951, between Mid-States and Mr. Lotz specifically provided that (1) all pre-

miums received by Mr. Lotz were to be held by him as trustee for Mid-States and were trust funds (Find. VI, T. 123), (2) that the Public Service checks were endorsed, cashed and paid to American Fidelity (Find. XIV, T. 130) in the main within 3 weeks after September 1, 1951 (Find. XVIII, T. 136), the trial Court held that "the course of dealing between Mid-States and Mr. Lotz was not altered after the execution" of the agreement of September 1, 1951 (Find. VI, T. 124); notwithstanding that substantially all of the Public Services monies had been received and paid to American Fidelity during the same month of September without Mid-States' knowledge and there could hardly have been time to establish a course of dealing. It is respectfully submitted that where the parties have entered into a written agreement and one of the parties breaches the agreement without notice to the other and without time for the other to learn about it and acquiesce, that it is error to find that there has been "a course of dealing" altering the written agreement (T. 124).

D. ARGUMENT.

1. THE PRINCIPAL IS LIABLE FOR THE ACTS OF THE AGENT.

Under the rule of *respondeat superior* the master is liable for the torts of his servants committed within the scope of their employment, and because the servant is engaged in the master's work and is doing it in place of, or for, the master, the act of the servant is

regarded as the act of the master. *Fernelius v. Pierce* (1943), 22 Cal. 2d 226, 233.

Likewise, representations of an authorized agent are in law the representations of the principal, and where false and fraudulent representations are made by an agent, the principal is equally responsible with the agent since the principal cannot accept the benefits of the transaction and at the same time disclaim liability for fraud which induced a party to enter into the transaction. *Newcomb v. Title Guarantee and Trust Co.* (1933), 131 C.A. 329, 332; *Mathews v. Wilson* (1918), 38 C.A. 148.

In *Ralston Purina Co. v. Novak* (1940), 111 F. (2d) 631, at page 632, the Court said:

“It is elementary that acts of fraud committed by an agent in the course and scope of his employment are binding upon his principal even though the principal did not know of nor authorize the commission of the fraudulent acts.”

In *Jones v. Bankers Life Co.* (1942), 131 F. (2d) 989 at page 993, the Court said:

“Similarly, we recognize the doctrine that a principal who puts an agent in a position that enables the agent, while apparently acting within his authority, to commit a fraud upon third persons, is subject to liability to such third persons for the fraud of the agent.”

The Anglo Bank, in making inquiry of Messrs. Lotz and Smead as to the authority of Mr. Lotz to endorse checks payable to Mid-States had the right to rely upon the representations made to it by Lotz and Smead.

In 23 *Am. Jur.*, page 970, §161, it is stated:

“The rule is followed at the present time in practically all American jurisdictions in respect of transactions involving both real and personal property, that one to whom a positive, distinct and definite representation has been made is entitled to rely on such representation and need not make further inquiry concerning the particular facts involved. This rule is a corollary to the broad principle of a general right of reliance upon positive statements.”

See also *Seeger v. Odell* (1941), 18 Cal. (2d) 409, 414; *Neff v. Engler* (1928), 205 Cal. 484, 489; *Dow v. Swain* (1899), 125 Cal. 674, 683; *Jenness v. Moses Lake Development Co.* (Wash. 1951), 234 P. 2d 865, 869; *Rummer v. Throop* (Wash. 1951), 231 P. 2d 313, 319.

The right of a bank to rely on the representations made to it was recognized in the case of *Lahay v. City National Bank* (Colo. 1890), 25 Pac. 704, where the bank paid on an instrument upon the defendant's representation that the person presenting it was the one named therein. The Court held that the bank may recover the amount paid pursuant to the false representation from the defendant.

In relying on the representations of Messrs. Lotz and Smead (Find. XX, T. 137), the Anglo Bank was deceived and misled to its injury and damage. Had they not told the Bank that Lotz had authority to endorse Mid-States checks, they would not have received the funds represented by those checks and the Bank would not have become indebted to Mid-States

in the sum of \$37,500.00 therefor. The defendants, having received \$37,500.00 from the Bank because of their false representations, should in law and equity be required to repay the same to the Bank, else they will have been permitted to gain by their own wrongdoing.

The facts clearly show that Mr. Smead was the agent of American Plan and American Fidelity and was acting for, on behalf of and in their interests in representing to the Anglo Bank that Mr. Lotz had authority to endorse checks payable to Mid-States (T. 458, 465, 909; Find. XIV, T. 131, 132). The evidence also shows that American Fidelity actually received the funds from these checks (Find. XIV, T. 130, 131). Having accepted the benefits of the acts of their agents, American Plan and American Fidelity should answer for the consequences of their acts. In requiring American Plan and American Fidelity to return \$37,500.00 to Anglo Bank is to require them to do no more than return the money which they would not have received in the first place had it not been for the false representations of their agents, Messrs. Lotz and Smead, made on their behalf, in the course of their agency and in endeavoring to obtain money with which to pay them.

This liability of American Fidelity and American Plan as principals and as beneficiaries of the misrepresentation of their agents exists regardless of whether or not they were part of a conspiracy and of whether or not the moneys they received were trust funds. *Ralston Purina Co. v. Novak*, supra. It is the

consequence of the misrepresentations made to the Anglo Bank. Misrepresentations that were made with knowledge that they were untrue. Having been informed by Mid-States that it would not give authority to endorse its checks there was no way for Messrs. Lotz and Smead to believe they had such authority.

Nor does it matter that the defendants did not think that the Anglo Bank would be exposed to any liability to Mid-States.

In Finding XXIII, T. 139, the trial Court found that the defendants did not "think that Anglo Bank would be exposed to any liability to Mid-States in accepting or acting on such endorsement." What the defendants thought is of no consequence. It is what they did that counts.

In *Wells v. Lloyd IV* (1936), 6 Cal. (2d) 70, 82, the Court said:

"Under section 3333, Civil Code, the measure of damages for the breach of an obligation not arising from contract is the amount which will compensate for all the detriment proximately caused thereby, *whether it could have been anticipated or not.*"

Consequently, while the defendants may not have thought that the Anglo Bank would be exposed to any liability, their ignorance of the law of the liability of a bank in honoring an unauthorized endorsement is no defense or acceptable answer to the false representations they made to the Bank and which enabled them to obtain funds belonging to Mid-States. Having

made the misrepresentations, it is not their right to say we meant no harm; for they are liable for the natural and direct or proximate consequences of their acts (*Wells v. Lloyd IV*, supra).

Nor can there be any question that the defendants knew that the representations were false. On the day before they opened the account with Anglo Bank Messrs. Lotz and Smead had teletyped to Mr. Hart we "are awaiting authorization required to deposit" (T. 477) and "if we do not receive authorization right away from them (Mid-States) we can have re-issued" (T. 477). Three days before that they had written to Mid-States asking for authority to endorse its checks (T. 287). These are not the acts and statements of persons who believed they had authority to endorse checks payable to Mid-States. On September 5, 1951, and before depositing any of the Public Service checks, or any other check payable to Mid-States, the defendants received written notice from Mid-States denying their request for authority to endorse its checks (T. 289). Since all the checks affecting the Anglo Bank were endorsed after this notice there was no possible way for the defendants to believe they had authority to endorse Mid-States checks. Furthermore, to allay any suspicion that they might have aroused in requesting the authority to endorse, they wrote Mid-States on September 8, 1951, saying that they would not need such authority (T. 291) and notwithstanding such continued to represent to the Anglo Bank that they did have such authority.

2. **AMERICAN FIDELITY RECEIVED THE MONEYS FROM LOTZ WITH KNOWLEDGE THAT THEY WERE TRUST FUNDS FOR THE BENEFIT OF MID-STATES.**

- (a) **The moneys were trust funds held by Lotz for the benefit of Mid-States.**

There is no dispute that the Public Service checks were made payable to Mid-States and represented premiums for insurance written in Mid-States (Find. XVIII, XXI, Tr. 136, 138). Nor is it disputed that Lotz deposited these checks in his trustee account with Anglo and used the funds to pay his indebtedness to American Fidelity (Find. XIV, T. 130, 131).

By law, funds received by an agent as premiums are trust funds held for the benefit of the insuring company.

California Insurance Code, Section 1730;

17 *Ops. Cal. Atty. Gen.* 1;

Garrison v. Edward Brown & Sons (1944), 25 C. 2d 473;

Maloney v. Rhode Island Ins. Co. (1953), 115 C.A. 2d 238.

However, the trial Court found that the conduct of Lotz and Mid-States modified the trust relationship to the extent that the funds were no longer trust funds (Find. VI, T. 123, 124). In arriving at this conclusion, the Court acknowledged that the new agency agreement of September 1, 1951, between Lotz and Mid-States expressly provided that "all premiums received by the agent shall be held by such agent as trustee for the Company . . ." and "that the premiums received are trust funds" (ibid.)—a provision not contained in the earlier contracts. To offset this

the Court found that the course of dealing between Mid-States and Lotz was not altered after the execution of the new agreement (T. 124).

This conclusion is not supported by the evidence. For the Court also found that the bulk of the Public Service checks were endorsed and paid to American Fidelity within less than three weeks of September 1, 1951 (Find. XVIII, T. 136). Not only was there insufficient time to establish a course of dealing inconsistent with the trust, but during the same three week period Mid-States admittedly twice wrote to Lotz refusing him authority to endorse its checks! And these were the very checks in issue. Nor is there any evidence to show that Mid-States knew during this period that Lotz was violating the new agreement of September 1, 1951.

Without time and without knowledge and acquiescence by Mid-States, clearly no inconsistent course of dealing could be established, and in the absence of any such course of dealing, the law and the contract must determine the nature of the funds to be trust funds.

(b) American Fidelity knew it was being paid with trust funds.

When interrogated about Section 1730 of the California Insurance Code, Mr. Hart, President of American Plan, testified (T. 873):

“Q. You are familiar with Section 1730 of the Insurance Code which makes it a crime to use premium funds for purposes other than the payment of the account of the company for whom the business is written?

A. I am.”

Mr. Hart knew that Mr. Lotz didn't have the money to pay him (T. 832, 844); he was concerned over the indebtedness (T. 838, 845); he knew that the Public Service checks were payable to Mid-States (T. 476, 477); and he knew that American Fidelity was being paid with the Public Service moneys (T. 478, 805). He even testified that at one time he thought of checking directly with Public Service to make sure that the business was being rewritten with Mid-States (T. 807).

In addition to the knowledge Mr. Hart had concerning the source and ownership of the funds being paid to American Fidelity, Mr. Smead concededly knew the source and ownership of all the moneys that were paid to American Fidelity. His knowledge, as the agent of American Plan with full authority over the financial affairs of Mr. Lotz' business (Find. XIV, T. 132), is imputed to his principals, American Plan and American Fidelity.

The law concerning the liability of a person who acquires property with knowledge that its transfer to him constitutes a breach of trust is clear. The rule is stated in 25 *Cal Jur.* 222 as follows:

“On the other hand, a person who acquires property from another with knowledge that the transferor has merely the legal title, equitable ownership being in a third person, is deemed to hold the land, goods or securities charged with a trust in favor of the equitable owner; and the latter may maintain a suit to establish ownership and compel a transfer of the property. In the language of a recent decision, ‘A court of

equity will enforce a trust against all persons who, with notice of the trust, come into possession of the trust property, in the same manner and the same effect as against the original trustee.' If the transferee had knowledge of the trust, it is of no importance that he acted in good faith or without intention of perpetrating a wrong; his motive or intention cannot affect the rights of the equitable owner."

In accord see *Calif. Civil Code*, Section 2243, which provides:

"Everyone to whom property is transferred in violation of a trust, holds the same as an involuntary trustee under such trust, unless he purchased it in good faith, and for a valuable consideration."

3. **AMERICAN FIDELITY, HAVING TAKEN THE PUBLIC SERVICE PREMIUMS WITH NOTICE OF THEIR TRUE OWNERSHIP, HOLDS THEM AS A CONSTRUCTIVE TRUSTEE AND MUST MAKE RESTITUTION.**

Even if we assume for the sake of argument that Messrs. Smead and Lotz were not agents of American Fidelity in their dealings with the Public Service checks that were payable to Mid-States, American Fidelity cannot be allowed to benefit by their fraud. It must hold the funds as constructive trustee for the benefit of plaintiffs.

This for the reason that American Fidelity was not a bona fide purchaser: it knew, through Mr. Hart, the president of its managing company, that it was being paid with premiums belonging to Mid-States (T. 805).

The applicable rule is stated in the Restatement of Restitution, Section 167:

“Where the owner of property transfers it to another, being induced by fraud, duress or undue influence of a third person, the transferee holds the property upon a constructive trust for the transferor, unless before notice of the fraud, duress or undue influence the transferee has given or promised to give value.”

Concerning the bona fides of American Fidelity, the controlling principle is that:

“A person has notice of facts giving rise to a constructive trust not only when he knows them, but also when he should know them; that is when he knows facts which would lead a reasonably diligent and intelligent person to inquire whether there are circumstances which would give rise to a constructive trust, and if such inquiry when pursued with reasonable intelligence and diligence would give him knowledge or reason to know of such circumstances.”

Restatement of Restitution, Section 174, comment a;

Fletcher v. Allen (1921), 51 Cal.App. 774.

In addition to what Mr. Hart actually knew about the source of the payments to American Fidelity, he certainly had more than ample knowledge to arouse any reasonable person's suspicion that he was being paid with money belonging to others. He concededly knew about the Public Service transaction and about the desperate state of Mr. Lotz's finances. He even

expressed concern by teletype as to how the Public Service checks were made payable (T. 477).

While Mr. Hart testified (T. 763) that he had no concern over the payment of Lotz's indebtedness because of a contemplated loan, the receivables outstanding, and some unearned commissions, the evidence shows that no loan materialized, the receivables were approximately \$75,000.00, and regarding the unearned commissions Mr. Hart testified later that he didn't think they would have any bearing (T. 912). Since the indebtedness was \$240,000.00, the difference had to come from premiums belonging to other insurance companies.

4. THE CONSPIRACY.

The Courts recognize the difficulty in proving a conspiracy. In *California Auto Court Assn. v. Cohn* (1950), 98 C.A. 2d 145 at 149, the Court said:

“Furthermore, because of the inherent difficulty in proving a conspiracy, it has been held that a conspiracy may sometimes be inferred from the nature of the acts done, the relations of the parties, the interests of the alleged conspirators, and other circumstances.”

Despite the refusal of the trial Court to find a conspiracy and to credit the written statements of Messrs. Lotz and Smead the following remain uncontradicted and admitted by Mr. Hart:

(1) Mr. Hart was concerned over payment of Lotz' indebtedness and called him and Mr. Smead to New York.

(2) Mr. Lotz owed American Fidelity approximately \$240,000.00 (T. 762).

(3) Mr. Lotz did not have the money to pay American Fidelity.

(4) Writing of insurance in Mid-States was discussed at the New York meeting (T. 764).

(5) Mr. Lotz did call Mid-States from Mr. Hart's office (T. 765).

(6) A week after the New York meeting Mr. Hart did come to Oakland (T. 772).

(7) Mr. Hart did know about the Public Service transactions (T. 773).

(8) Mr. Hart did know that the Public Service checks were payable to Mid-States.

(9) Mr. Hart did want to keep Mr. Lotz in business (T. 904) and testified, "I was interested in keeping Mr. Lotz in business to collect our money."

(10) Mr. Hart did credit Mr. Lotz' account with \$38,000 so that if any one inquired about Mr. Lotz his company could say that he was current with them (T. 903).

(11) Mr. Smead did get approval from Mr. Hart to make a payment on September 15, 1951, to Mid-States (T. 783).

(12) American Fidelity was paid with premiums on insurance written in Mid-States.

(13) Mr. Hart hired Mr. Smead and ultimately appointed him Pacific Coast Manager for his company, all the while knowing about the statements and charges Mr. Smead had made accusing him of the conspiracy.

Short of additional confessions what more could the plaintiff show? The purpose or motive, the necessity and the actual accomplishment in the manner alleged are all admitted, to which is added the peculiar circumstance of the employment of Mr. Smead by the very persons he accuses of the conspiracy.

E. CONCLUSION.

(1) Messrs. Lotz and Smead as agents, and American Plan and American Fidelity as principals, are responsible to the Anglo Bank for the damage it has sustained because of the false representations and statements that Lotz had authority to endorse Mid-States' checks. This is so regardless of whether or not there was a conspiracy.

(2) American Fidelity and American Plan, having benefited because of the false representations and statements of their agents to the detriment of Anglo Bank, should be required to reimburse Anglo Bank; otherwise they would be unjustly enriched.

(3) American Fidelity and American Plan knowing that the Public Service monies were trust funds belonging to Mid-States could not receive them in

good faith and must hold them in trust: \$37,500 for the Anglo Bank and the balance for Mid-States.

(4) All the elements of a conspiracy, short of a confession from all parties, were established.

Dated, San Francisco, California,
September 12, 1955.

Respectfully submitted,

SEVERSON, McCALLUM & DAVIS,

ALMON B. McCALLUM,

NATHAN R. BERKE,

*Attorneys for Appellant, The
Anglo California National
Bank of San Francisco.*

No. 14,695

United States Court of Appeals
For the Ninth Circuit

MID-STATES INSURANCE COMPANY,
a corporation, and THE ANGLO
CALIFORNIA NATIONAL BANK OF
SAN FRANCISCO,

Appellants,

VS.

AMERICAN FIDELITY AND CASUALTY
COMPANY, INC., a corporation,
THE AMERICAN PLAN CORPORA-
TION, a corporation, MARK HART,
JOSEPH LOTZ, RALPH L. SMEAD
and L. SUDEKUM,

Appellees.

Appeal from the United States District Court for the
Northern District of California,
Southern Division.

BRIEF FOR APPELLEES

AMERICAN FIDELITY AND CASUALTY COMPANY, INC.
AND THE AMERICAN PLAN CORPORATION.

E. D. BRONSON,
HAROLD R. MCKINNON,
BRONSON, BRONSON & MCKINNON,
Mills Tower, San Francisco 4, California,

*Attorneys for Appellees American
Fidelity and Casualty Company,
Inc. and The American Plan
Corporation.*

FILED

NOV 15 1955

Subject Index

	Page
Introduction	1
Argument	2
I. There was no conspiracy to defraud.....	2
A. The trial Court's findings.....	2
B. The findings are sustained by the record.....	5
1. The Effect of the trial Court's findings.....	5
2. Mid-States' contentions	7
3. The written statements and testimony.....	7
Hart and Feller.....	15
4. The course of dealing.....	18
Lotz was a debtor as to premiums and there- fore there was no diversion of Mid-States' money	18
Premiums being Lotz's money and not trust funds, no fraud was committed against Mid- States	26
Public Service Rewrite.....	30
The American Fidelity rewrite.....	38
Control of the agency.....	40
The Machado case.....	40
II. The Anglo case.....	43
A. There was no conspiracy to defraud.....	43
B. No fraud was practiced on Anglo.....	44
C. Anglo was not liable to Mid-States.....	49
Conclusion	50

Table of Authorities Cited

Cases

	Page
Chicago Fire etc. Co. v. Fidelity etc. Co. (1933), 41 Ariz. 358, 18 P. 2d 260.....	18
Downey v. Humphreys (1951), 102 C.A. 2d 323, 227 P. 2d 484	18
Earle v. W. J. Jones & Son (1952), 200 F. 2d 846.....	5
Horton v. Eagle Indemnity Ins. Co. (1934), 86 N.H. 472, 171 A. 322.....	18
Manufacturers Cas. Ins. Co. v. Mink (1943), 129 N.J.L. 575, 30 A. 2d 510.....	18
Quon v. Niagara Fire Insurance Co. (1951), 190 F. 2d 257	6
Ruud v. American Packing etc. Co. (1949), 177 F. 2d 538..	5
Stuyvesant Ins. Co. v. Ayers Nat. Bank (1932), 268 Ill. App. 395.....	46
Twin City Fire Ins. Co. v. Green (1949), 176 F. 2d 532, 177 F. 2d 626.....	18
Washington v. Covert (1896), 14 Wash. 352, 45 P. 304.....	18

Statutes

California Civil Code, Section 3432.....	37
--	----

Texts

8 Cal. Jur. 1056.....	37
-----------------------	----

No. 14,695

United States Court of Appeals For the Ninth Circuit

MID-STATES INSURANCE COMPANY,
a corporation, and THE ANGLO
CALIFORNIA NATIONAL BANK OF
SAN FRANCISCO,

Appellants,

vs.

AMERICAN FIDELITY AND CASUALTY
COMPANY, INC., a corporation,
THE AMERICAN PLAN CORPORA-
TION, a corporation, MARK HART,
JOSEPH LOTZ, RALPH L. SMEAD
and L. SUDEKUM,

Appellees.

Appeal from the United States District Court for the
Northern District of California,
Southern Division.

BRIEF FOR APPELLEES
AMERICAN FIDELITY AND CASUALTY COMPANY, INC.
AND THE AMERICAN PLAN CORPORATION.

INTRODUCTION.

Though all defendants are listed as appellees in the title, actually the only appellees are American Fidel-

ity, American Plan, Joseph Lotz and Ralph L. Smead, who were the only defendants served.

This brief is presented for appellees American Fidelity and American Plan. It is in reply to the briefs of both appellants, Mid-States and Anglo Bank.

The basic issue of whether a conspiracy to defraud existed is common to both appeals. Other issues relate to Anglo alone. We will first treat the charge of conspiracy, responding to the arguments of both appellants on that subject. We will then discuss the issues peculiar to Anglo.

ARGUMENT.

I.

THERE WAS NO CONSPIRACY TO DEFRAUD.

A. THE TRIAL COURT'S FINDINGS.

To keep this brief within bounds, we omit a comprehensive statement of facts, and instead we respectfully refer this Honorable Court to the findings of the trial court (R. 114-140) and to its opinion. (R. 97-114.) Of these, we refer to the following:

The court found in substance that with Mid-States' knowledge and permission, Lotz used premiums for his operating expenses and sub-agents' commissions, which amounted to 15.4% and 26% respectively, and he commingled all funds freely; that Mid-States considered him an "independent contractor" in respect to keeping his books and bank account; and that he was almost always overdue in remitting to Mid-States.

From such facts the court found that premiums were not trust funds but money belonging to Lotz. (R. 120-123.)

Mid-States was entitled to 14% of premiums. The remaining 86% was subject to Lotz's expenses and to claims, any balance being commission to Lotz (payable after the loss experience was determined). Lotz's loss ratio ran from 64% to 68% and his expenses in excess of 40%, thus resulting in a loss to him of over \$20.00 on each \$100.00 of insurance written by him. Moreover, as the court found, Mid-States knew Lotz was unreliable; yet Mid-States urged him to write more business. From these facts the court found that Lotz was not guilty of concealment and that Mid-States was largely responsible for its loss. (R. 124, 125.)

The court found that although there was an excess of liabilities over assets in the Lotz agency on August 1, 1951, Lotz's books were in a chaotic and incomplete state and ill equipped to show the true financial position of the agency, and that therefore defendants did not know that Lotz was insolvent or unable to meet his obligations until about December 1951; and that as late as the latter part of November 1951, Lotz and Hatfield (Manager of Mid-States) thought that Lotz would be able to pay his obligations. (R. 125, 126.)

The court found specifically and in detail that no plan or conspiracy to defraud Mid-States or Anglo Bank was entered into or carried out by defendants. (R. 126-135.)

As to the \$61,000 rewrite, the court found that the statements by Hart, President of American Plan, to Hatfield, in the telephone conversation of November 1, were not made with any intent to deceive and were not relied upon by Hatfield in entering into the contract, and that no fraud or deceit was practiced in that respect. (R. 127.)

In the court's opinion, the court discusses the various issues, pointing out Mid-States' knowledge of Lotz's use of premium moneys for expenses, his commingling of premium moneys with his own and the resultant debtor-creditor relationship between Lotz and Mid-States; the fact that the evidence did not substantiate the allegation that defendants entered into a conspiracy to defraud Mid-States; the fact that the testimony of Hart rebutted "all evidence in the record which attempted to show fraudulent intent on the part of defendants" (R. 107); the fact that Lotz's insolvency became known only after assembling and studying the figures after the period in question; that as late as late November or early December, 1951, Mid-States thought the situation could be worked out and was cooperating with Lotz; that Smead admitted to the court that he lied (under oath) and that the court could "give very little credence to his testimony". (R. 111.) The court concluded that from a study of the entire record, plaintiff had not sustained its burden of proving a conspiracy to defraud, and that "the underlying factor which motivated both insurance companies * * * was to secure all the business possible in this State, and it was this

anxiety for business which caused a great loss to one of them". (R. 113.)

B. THE FINDINGS ARE SUSTAINED BY THE RECORD.

1. The Effect of the Trial Court's Findings.

Mid-States has cited authorities declaring some of the principles governing review of a trial court's findings. There are other principles, too, and while this Court is thoroughly familiar with its powers in this respect, we take the liberty of mentioning a few of these other principles.

In *Earle v. W. J. Jones & Son* (1952), 200 F. 2d 846, this Honorable Court said (pp. 847, 848):

"* * * we should be reluctant to disturb the finding of the trial court where, as here, the question whether the advances gave rise to debts or to a proprietary interest depends upon the determinative *intent* (emphasis the Court's) of the parties to the critical advances. 'Findings as to the design, motive and intent with which men act depend peculiarly upon the credit given to witnesses by those who see and hear them.' "

In *Ruud v. American Packing etc. Co.* (1949), 177 F. 2d 538, this Honorable Court pointed out (p. 540) that "if * * * findings * * * are sustained by substantial competent evidence the judgment appealed from should be affirmed"; that findings are "presumptively correct and must be sustained unless clearly erroneous"; and that the function of the appellate court is "to review alleged errors of law that may have been committed by the trial court". This Court then added:

“We are not at liberty to substitute our judgment for that of the trial court, and on appeal that view of the evidence must be taken which is most favorable to the prevailing party, and, if when so viewed, the findings are supported by substantial competent evidence, they should be sustained.”

In *Quon v. Niagara Fire Insurance Co.* (1951), 190 F. 2d 257, this Court considered the effect of a finding which involved the question of waiver or estoppel. This Court pointed out that that involved “among other factors, the intention of the party”. The Court then discussed the effect of a writing, saying (p. 260):

“The writing under these circumstances must be viewed in its setting together with all the other evidence in light of the credibility accorded the witness. Here the writing is one of the collateral facts.”

This Court then added:

“The theory that there is some magic in the writing itself and that the construction of writings by an appellate court has some special sanction is applied not only in cases such as this, but to depositions, incidental documents, stipulations before the trial court and other features. None of this is valid. The problem before the court is generally one of fact, and there the findings of the trial court are binding. There are many cases where the construction of writings is a question of law. But here the interpretation of this document was required in connection with many circumstances as a question of fact. There was substantial evidence to support the findings, and

these are not clearly erroneous. No rule of law was violated.”

So we submit that the “clearly erroneous” rule and the written evidence doctrine referred to in Mid-States’ brief must be considered together with these other principles in the review of the trial court’s findings in this case; and that when so viewed the trial court’s determinations should be affirmed.

2. Mid-States’ Contentions.

Mid-States argues that it was entitled to recover because of a conspiracy of fraud against it whereby, it says, Lotz breached his fiduciary duty toward it. It argues, first, that the premiums on its insurance were trust funds which were wrongfully diverted to American Fidelity, and next, that even if the premiums were not trust funds Lotz breached other fiduciary duties toward it which rendered defendants liable for its loss. It bases its contentions, first on certain written statements and testimony, and then on a course of dealing. We will first treat the statements and testimony, then the course of dealing.

3. The Written Statements and Testimony.

In December, 1951, several written statements were taken from defendant Smead. Defendant Lotz joined in some of these and made one of his own. Of these, the basic story is contained in Smead’s statement of December 6th; the other statements are supplemental or repetitive.

In its brief, Mid-States refers to these statements several times, but without summarizing their contents.

Since appellant has not seen fit to state these contents, we will not do so except to say that they include some charges of a plan to deceive.

Examination of the statements discloses that the chief source of them was Smead, Lotz's office manager. This is confirmed by the testimony of Lotz below referred to.

At the trial, Smead testified in accordance with the statements.

It takes little to demonstrate the worthlessness of Smead's statements and testimony. He testified under oath five times in regard to this transaction: in a deposition and in the trial of Mid-States' suit against Anglo, in a proceeding before the California Insurance Commissioner to revoke Lotz's license, and in a deposition and in the trial of this case. Three times he repudiated his written statements, twice he confirmed them. Examples of his self-contradiction are:

At the trial of this case, Smead testified he told Hart in New York that the total receivables of the agency were \$75,000.00. (R. 437.) At the Commissioner's proceeding he testified it was represented that the receivables on American Fidelity business alone almost equalled the \$240,000 Lotz owed American Fidelity. (R. 550.)

At this trial he testified that Hart in his New York office put through a call from Lotz to Mid-States in Chicago station-to-station, saying he did not wish Mid-States to know Lotz was there in his office. (R. 439.) At the trial of Mid-States against Anglo, he testified that that was not true. (R. 554.)

At this trial, he testified that Hart was asked what would happen when Mid-States found itself in American Fidelity's position and that Hart said he would worry about that if the time came. (R. 440.) At the deposition in Mid-States against Anglo, he said he did not recall the conversation. (R. 557.)

At the trial of Mid-States against Anglo, he testified regarding his December 6th statement that "there were certain small portions that might be true", but that the majority of it "was untrue and very definitely untrue", and also "I don't think that supplement is true either * * *" Then:

Mr. Garrison (attorney for Mid-States):

"Did you fabricate all this conversation with Mr. Hart and make that up?"

Answer: "Mr. Hatfield and myself did, yes." (R. 558, 559.)

At the trial of Mid-States against Anglo, Smead testified:

Question: "Now Mr. Smead, is it true or is it not true that Mr. Hart told you to deposit these Public Service funds first in the trustee account and then in the American Fidelity and Casualty Company account at the Central Bank?"

Answer: "It is untrue."

Question: "Did you make that all up when you told it to me in my office?"

Answer: "Mr. Hatfield and I made up all the statements, Mr. Garrison." (R. 560, 561.)

Question: "Did he (Mr. Mead, attorney for Lotz) know that it was all a fabricated pack of lies?"

Answer: "I didn't tell him that until some time later." (R. 564.)

At the trial of this case, after Smead had been faced with these and similar passages in his previous testimony, he was questioned by the trial judge and replied as follows:

The Court: "If I understand you, then, you admit yourself you lied?"

The Witness: "Yes, sir * * *" (R. 568.)

It is true that Smead testified at this trial that previous testimony of his which was adverse to Mid-States had been given under the influence of Mr. Hart, by whom he was then employed. All that this amounts to is that Smead's testimony varies with the person with whom he is dealing. By this token, the statements he gave Mid-States are as worthless as the testimony he gave against them. In other words, Smead's word is worthless.

Then how about Lotz? Lotz signed some of the statements. But his testimony throws a different light on the subject.

For example, in his testimony concerning the New York conference, he said, "It is pretty hard for me to give any details because I was very much confused and upset." (R. 626.) Smead, he said, did most of the talking. "I was not feeling well. I was unable to talk." (R. 627.) Asked whether anything was then said as to how they could pay American Fidelity, he said: "I don't think we were too much disturbed about working it out." (R. 628.) He did not recall the formula they had, nor that anything was said about using another company's premiums to pay American Fidelity. (R. 628, 629.)

Regarding the written statements, Lotz said: "I was very much influenced by Ralph's point of view because of my mental condition at that time. I wasn't too much on a good equilibrium basis with this worry and other things, physical conditions." (R. 657.)

He frankly disclosed his mental processes. He testified "I had in mind some thoughts and plans, but sometimes my mind gets ahead of what is transpiring right there; so if I hesitate in these answers, I am not sure, so I don't like to say yes or no." (R. 630.) "At that time," he said, "I wasn't myself." (R. 702.)

He exhibited similar indefiniteness regarding the conferences in Oakland, and in explanation testified: "I was in a very bad nervous condition at that time,¹ so some of these answers I don't know due to the stress I had." (R. 634.) He was "pretty well unstrung" and threw things in Smead's lap. (R. 635.)

Regarding the letter terminating his agency with American Fidelity, he said: "I don't even remember signing it." (R. 639.)

Regarding the December 6th statement of Smead, which he had endorsed as correct, he stated, at a meeting with plaintiff's officials and his attorney, William Mead, "I have no idea really what is in it." (R. 936.)

The portrait is of an insolvent man who signed things that were given to him by officials of a company to whom he was indebted and who had taken over

¹This is confirmed by Mr. Titus, President of Mid-States, who testified, "Lotz was, as he testified, very confused." (R. 747.)

his business to liquidate it and who were getting statements for a lawsuit against another company. The pressure was real, for the vigor with which Mr. Hart is charged in collecting his money was being matched by that of Mr. Titus and his colleagues in procuring the desired statements. Lotz was no business man. He was an old baseball pitcher, who had transferred his operations from the pitching mound to selling insurance in used car lots. He was sick, in mind and body. He signed things, but they were prepared by others and he could not even remember what was in them. And, as he said, he was under the influence of Smead.

And there was another thing, of weighty significance. It was the manner of taking the key statement of December 6. It is described by William Mead, who had been Lotz's attorney at that time, and whose reputation and bearing firmly established his veracity. He was a disinterested witness, not having acted for Lotz since January, 1952. (R. 925, 926.) His testimony (R. 926-939) was clear. He said Hatfield came to Mead's office December 5, saying they might sue American Fidelity and asked Mead as attorney for Lotz and Smead to arrange for a statement by them. Mead said he had no objection and telephoned Lotz in Hatfield's presence, telling Lotz of Hatfield's request and asking Lotz to come to Mead's office the next morning at ten and bring Smead. Lotz agreed. Mead told Hatfield, who said that was fine.

The next morning no one appeared. Mead telephoned Lotz and asked what had happened. Lotz

advised Mead that the statement had been taken the night before. Mead asked for it. Lotz said Hatfield had taken it. That evening Mead met with the Mid-States' officials. Mr. Titus had the statement and wanted Lotz to swear to it. Mead told him he was amazed at the breach of the agreement made with him and that if Titus would give up the statement they would then prepare another. He testified: "I do recall very distinctly saying that I had no idea whether the statement itself contained all facts or half facts or opinions or whether it was only a partial story." (R. 934.)

Titus refused. Titus then said he feared signers might deny their signatures. Mead asked Lotz if it was his signature. When Lotz said it was, Mead affixed his acknowledgment (only on Smead's signature, it appears). Titus took the statement. Mead has never read that statement or any other.

Such was the testimony of Mead. It was contradicted by Titus and Hatfield in important particulars. Instead of our case being weakened by that conflict, we think it is greatly strengthened. Our reason is if we start with the credibility of Mead—which we should do because it supports the trial court's finding and comes from a reputable witness—the testimony not only prevails against that of Titus and Hatfield on this issue but incidentally clouds the credibility of the latter on all other issues in the case.

Titus testified that when the statements were shown to Mead the latter did not seem surprised that the statements had been taken and did not rebuke Titus

or Hatfield for taking them; that Mead read them out loud and that changes were made in them. (R. 722, 744, 748.) Hatfield testified that the statement was read orally by Mead, who would stop frequently and ask if there were any corrections and after corrections were made asked Smead and Lotz if they were willing to sign it, which they did. (R. 252, 253.) He said he did not recall asking Mead for a statement or making the appointment with him, and he denied that Mead reproached him for a broken appointment. (R. 368, 369.)

These things are in direct conflict with Mead's testimony. The conflict is too sharp to be accounted for by mere faulty memory. And on credibility, we must assume the court followed Mead, and rightly because whereas Titus and Hatfield were interested witnesses Mead was completely disinterested and a man of proven reputation in his profession.

On the issue of conspiracy, therefore, we are concerned primarily with written statements given by a man whose word is worthless, concurred in by another who was concededly under the influence of the former and so impaired in mind and body that he could not remember what he signed; and the original and basic statement was taken from these parties outside the presence of their attorney and in violation of an agreement with him in that respect. As against these statements, we have the unqualified testimony of Messrs. Hart and Feller, which we now briefly survey.

Hart and Feller.

All the statements relied on to show conspiracy were denied by Mr. Hart under oath. He denied that the origin of the telephone call to Mid-States in Chicago was concealed; he simply told his operator to get Mid-States for Lotz. He denied the asserted reference to Cass, or to what would happen if Mid-States took action, or that there was a plan to use others' premiums, and the various other items relied on as evidence of conspiracy. (R. 765-771.) He testified that it was untrue that he asked Smead to keep his name out of the Public Service transaction (R. 775), or that he told Lotz to deposit Public Service checks first in the Lotz trustee account and then transfer the money to American Fidelity (R. 783), or that he told Smead to destroy teletypes. (R. 789.) He denied that he ever asked Smead to change his statements. (R. 819.)

Mr. Feller, general counsel for American Fidelity, similarly denied all the conversations asserted to have occurred in his presence to show fraud (R. 942-954); and he pointed out that the liquidation agreement of August 22 between American Fidelity and Lotz, which Mid-States interprets as evidencing a fraudulent plan, was actually typed by a secretary at the Central Bank of Oakland who was furnished by Mr. Smith, an official of the Bank, and a copy of the agreement was left with Mr. Smith. (R. 954, 955.)

The charge that at New York or in Oakland defendants knew Lotz was insolvent and would have to take someone else's money to pay defendants was rebutted by Mr. Hart in every respect. In the first place, de-

fendants never examined Lotz's books or got a statement from him. (R. 777, 778; 794, 795; 949.) It would have done little good, because the books were grossly inadequate, the postings not being up to date. (R. 950.) Hatfield himself testified that the books were in "a deplorable state"; that the postings were "far behind (and) you couldn't tell the exact status of the Agency at all", and that it took their auditors a month or six weeks to make an examination of the books. (R. 265, 266.) (Actually it took two months. Testimony of plaintiff's auditor, Horton. R. 616.)

At New York, the situation was this. Lotz owed American Plan about \$240,000.00.² His receivables on American Fidelity business were reported to be about \$140,000. Although that turned out to be mistaken, it then appeared reasonable as explained in detail by Mr. Hart. (R. 913, 914.) In addition, Lotz was going to get a better deal from Mid-States with a 15% pre-paid commission; he said he was negotiating for a \$100,000³ loan; and he had a \$60,000 equity in his \$300,000 unearned premium reserve with American Fidelity.

In these circumstances, Mr. Hart said that while Lotz's cash was strained, there was no great concern that he would be able to liquidate his balance. (R.

²Anglo says that Hart called Lotz to New York because Lotz owed American Fidelity \$247,000 and Mid-States \$30,000. That is mistaken. He called him because he owed \$6,600 on a special transaction and a large May balance would fall due in a few days. (R. 760.)

³This figure is referred to by Mid-States as \$50,000. Hart testified that the amount was \$100,000 (R. 762), and so did Feller (R. 943).

763.) Mr. Feller felt the same way, and so expressed himself. (R. 944.) And so did Lotz. (R. 628.) Confirmation lies in the fact that his agency was not then terminated and Hart went out of town. (R. 771.)

A week later, Lotz not having met his August 15th payment to American Plan, Hart and Feller came to Oakland. Since Lotz had in the meantime gotten a better contract from Mid-States, Lotz's agency for American Fidelity was terminated and he made the liquidation agreement. The plan (except for the September 15th date, which Hart explained was psychological) appeared feasible, as related in detail by Hart. (R. 798, 799.)

The prospects of the loan were real, as indicated by the negotiations with the bank, including the fact that Mr. Feller spent nearly a day at the bank conferring with three or four officials and drawing documents to give the bank collateral in the form of Lotz's equity in the unearned premiums reserve (R. 952, 953) and by the fact that on September 21 and 27 Lotz's office teletyped Hart that they were working on the loan (R. 485, 487) and that in a teletype of September 28 Smead said, "Mr. Lotz and I were at the bank working on loan when you called and it is felt that loan will be consummated shortly." (R. 489.) As late as October 23, Smead teletyped "We have definite arrangements for loan." (R. 490.)

So we submit that on the basis of the written statements and testimony the trial court's finding that plaintiff failed to prove a conspiracy is amply supported. We come then to the course of dealing.

4. The Course of Dealing.

As we have stated, appellant argues that the premiums were trust funds but that even if they were not, defendants were guilty of fraud.

We will first discuss the character of the funds, and the legal consequences thereof. We contend that Lotz was a debtor rather than trustee as to premiums collected by him.

Lotz Was a Debtor as to Premiums and Therefore There Was No Diversion of Mid-States' Money.

While an insurance agent is ordinarily a trustee as to premiums, he becomes a debtor in respect thereto if the company permits him to mingle premium moneys with his own funds or otherwise use them inconsistently with a trust.

Downey v. Humphreys (1951), 102 C.A. 2d 323, 227 P. 2d 484;

Horton v. Eagle Indemnity Ins. Co. (1934), 86 N.H. 472, 171 A. 322;

Washington v. Covert (1896), 14 Wash. 352, 45 P. 304;

Twin City Fire Ins. Co. v. Green (1949), 176 F. 2d 532, 177 F. 2d 626;

Chicago Fire etc. Co. v. Fidelity etc. Co. (1933), 41 Ariz. 358, 18 P. 2d 260;

Manufacturers Cas. Ins. Co. v. Mink (1943), 129 N.J.L. 575, 30 A. 2d 510.

As an example of the rule, we quote from *Horton v. Eagle Indemnity Ins. Co.*, as follows (171 A. at p. 324):

“Nor does the clause in one of the contracts that until remittance of the amount due premiums collected by the agency were to be held as the property of the insurer and ‘as a fiduciary trust’ make a difference here. The course of dealings between the parties shows a waiver or cancellation of the clause. The contract was in force for over three years, and the manner of payments and the business methods of the agency during the period were within the insurer’s notice. The understanding and expectation of both parties that observance of the clause was to be ignored is thus decisively indicated. The practices employed by the agency and accepted by the insurer amounted to a parol alteration or cancellation of this term of the contract, and such a change is valid.”

As shown by the decisions, this is so as between the parties despite the fact that the law and the agency agreement may provide that premiums are trust funds. It is a modification of the status as between the parties.

The dealings of Lotz with respect to Mid-States’ premiums were radically and habitually inconsistent with a trust.

First, he used these premiums for his own purposes. This is the “float”, which Hatfield described as “using someone else’s money in the interim period before it is due”. (R. 324.) In Lotz’s case, it had existed from the beginning. His agency was a retrospective one, i.e., he could not take his commissions out of the premiums he collected, but he had to wait

until the premium was earned by the passage of time, and meantime he had to pay his operating expenses and commissions to sub-agents. Obviously, this required working capital. But Lotz had none, and he so advised Mid-States when his agency began. (R. 674, 675; 1173, 1174). Therefore, Mid-States knew he had to use their money. The evidence shows this. Richard Cass, executive of Mid-States when Lotz's original agency agreement with Mid-States was made, was asked in deposition: " * * * did the company know he used the money for operating expenses and paying any sub-agents?", and he answered: "There was knowledge of such facts, yes." (R. 1174.) Lotz explained it to Donnelly, Mid-States official who engaged him, who told Lotz: "You have got this length of time to pay your bills * * * you are using the company's money. That is the way the deal is set up." (R. 675.) Lotz mentioned it several times thereafter. (R. 680.) In 1948, 1949 and 1950 Lotz continued to operate on this float basis, without protest from Mid-States. (R. 684.) There was frequent inspection of Lotz's agency by visiting officials of Mid-States. (R. 676; 690 et seq.; 359.) In addition, Hatfield admitted that he knew in January 1951 that Lotz was paying sub-agents' commissions. (R. 353.)

The effect of this use by Lotz of premium moneys for operating expenses and sub-agents' commissions is demonstrated by Dfts' Exh. J, which shows the deficiency of cash in Lotz's accounts compared with his premium obligations to companies. (R. 969-972; 990-992.)

The result was that he was always delinquent in his remittances to Mid-States. Mid-States says he was at times delinquent ten days to two weeks. It was much longer than that. In 1950 three payments were 6 to 30 days late and *nine were 30 to 60 days late*; of the four payments from January to April, 1951, *three were 30 to 60 days late and one was over 60 days late*; and from April to September (when the credit period had been increased to 75 days) two payments were made within 5 days of the due date, one from 6 to 30 days late and *one 30 to 60 days late*. (Dfts' Exh. K; R. 973-975.) And the record shows letters and telegrams from Mid-States, almost monthly, sometimes three times monthly, demanding payments that were overdue. (Dfts' Exhs. A and F.)

Next is Lotz's method of handling funds. (R. 995-998.) He kept two accounts, trustee account and operating account. Into the trustee account went premiums received from sub-agents (usually after sub-agents' commissions were deducted), salvage and subrogation, and transfers from operating account. He drew on the trustee account to pay premiums, to make transfers to operating account, and to pay sub-agents' commissions where not previously deducted. He drew on operating account to pay his operating expenses and his own personal and living expenses. Commissions which he earned went into the operating account when he received them by check, and when they were received by way of credit against the account he owed a company, the credit was made to his trustee account. He put personal borrowings into the

operating account. And he made transfers back from operating to trustee account.

Such dealings were gravely inconsistent with trust. Paying sub-agents' commissions out of premiums was inconsistent with trust because on the trust theory the premiums would belong 100% to the company. Similarly the use of premium moneys for his operating expenses was inconsistent with trust.

Therefore, considering the way this agency was operated, it would do violence to the word *trust* to apply it to these premiums. It was *debt*, not *trust*. In fact, receipt of the premiums is not what gave rise to the obligation from Lotz to Mid-States. The company kept no track of Lotz's *receipt of premiums*, nor were they concerned with that. Rather, a certain number of days after the close of the month in which *the business was written* Lotz owed the amount of the premium to the company.

From this follows the important consequence that if the funds were not trust funds they belonged to Lotz and he could use them to pay his obligations. In other words, if he could pay sub-agent commissions, rents, salaries, etc., he could pay other creditors, including American Fidelity.

The course of dealing points up another important consideration. It is erroneous to compare, as appellant does, premiums received by Lotz on Mid-States' business in a given month with money paid to that company in that month. From May 15, 1947 to May 1,

1951, Lotz had 25 days from the end of the month in which business had been written to remit to Mid-States; from May 1, 1951 to September 1, 1951, 75 days; thereafter, 60 days. Furthermore, he was habitually late in remitting, as shown above. And he was "kiting", i.e., using premium collections to pay obligations which had arisen out of prior business. In view of these facts, "money in" as against "money out" in a given month is an unwarranted comparison.

Still another important consideration remains. In view of the commingling of funds, it was impossible at any time to tell how much of the money in Lotz's possession should be credited to any company. (R. 998.) Apart from allocation of cash, even the respective amounts he owed companies were not currently ascertainable for lack of entries. (R. 617, 618.)

In response to this, Mid-States argues that the agency agreement prior to September 1, 1951 did not state that premiums were trust funds, but that the September 1st agreement did so. This, they say, served to change any previous arrangement between the parties as to the character of the funds.

The absence of a provision in Lotz's agency agreement prior to September 1 regarding the nature of the funds was not significant because the law itself (which is quoted in Mid-States brief, pp. 23, 24) provided that they were trust funds. Both parties had known that law; yet Mid-States had let Lotz act otherwise. Therefore the trust clause in the September 1 contract added nothing.

The law provides that an insurance agent "who diverts or appropriates such fiduciary funds to his own use is guilty of theft". Is it conceivable that in spite of the way Mid-States permitted Lotz to deal with premiums—before or after September 1—it could have maintained that as between the parties Lotz was guilty of the felony of theft?

Another thing is that the September 1 agreement enumerated certain practices which it said would not destroy the trust character of the premiums, but the practices thus enumerated did not include the ones permitted by Mid-States which were inconsistent with trust. The practices listed in the September 1 agreement were (1) keeping the account on the company's books as a credit and debtor account, (2) alteration in compensation rate, (3) failure to enforce prompt remittance, and (4) compromise, settlement or declaration of balance of account. The agreement stated that none of those "shall be held to waive the understanding that the premiums collected by the agent are trust funds".

Those were not the practices which had destroyed the trust character of the funds in the Lotz agency. The permitted practices which had modified the trust were the use of the premiums for Lotz's own purposes, the commingling, etc. Nothing is said in the September 1 agreement concerning such practices.

There is nothing indicating any change after September 1 in Mid-States' attitude toward Lotz's habit of dealing with premiums, no admonition that the

practices of over four years were to be discontinued. Indeed, to do so would have been to terminate the agency, because Lotz could continue to operate on no other basis. Mid-States could justly be presumed to know this. In fact, by the September agreement, Mid-States granted Lotz a 15% prepaid commission because he told them that otherwise it would be difficult for him to shoulder the large volume of business it was then contemplated he would write for them. (R. 689, 694.) The conversation with Mid-States at Chicago which led to the September agreement was that Lotz was in trouble, that Mid-States was going to help him, that they would take all the business he could write, and that they would give him a new contract granting him a 15% prepaid commission. (R. 693-695.)

We submit that these facts substantiate the trial court's finding (R. 124) that premiums collected by Lotz after September 1 were of the same character as the previous ones, namely that they were not trust funds, but funds which belonged to Lotz. As such, he was entitled to use them to pay his obligations. Therefore Mid-States has failed to establish a right of action based on diversion of its money to others.

But they argue that the court's findings disregarded Lotz's fiduciary duties regarding aspects of his agency other than the accounting for premiums collected; and to that argument we now address ourselves.

**Premiums Being Lotz's Money and Not Trust Funds, No Fraud
Was Committed Against Mid-States.**

Disregarding the contention that the premiums were trust funds, and considering them as money belonging to Lotz, what wrong was accomplished?

The writing of the increased amount of business for Mid-States was not wrong. Mid-States asked for it. (R. 318; 693-695.)

There was no concealment of the fact that Lotz wrote the business for them. He made daily reports of his underwritings (except for a few days delay in reporting the Public Service underwriting, which was due to secretarial work in typing multiple policies).

The loss ratio involved no wrong. It was 68.51% on the business written after September 1, 1951, and that was only 3.86% higher than that of the previous part of the year, and it was much better than the loss ratio on the business Lotz wrote for American Fidelity, which was 79.51%. (Dfts' Exhs. M and N; R. 979, 980.) In other words, the losses did not invade the 14% of the premium retained by Mid-States, and Mid-States got a better class of business than Lotz wrote for American Fidelity which is charged with having been in conspiracy with him against Mid-States.

What, then was wrong? For this, we will take up the various charges made by Mid-States.

They say that Lotz was insolvent August to October 1951, and that the defendants then knew he was but nevertheless plunged him into deeper insolvency, to Mid-States' loss. But this is not so. American

Fidelity did not make Lotz insolvent. It merely was paid what was owing to it, and payment of a debt does not create insolvency or add to it. Lotz's insolvency was increased by the large underwritings for Mid-States, and Mid-States knew about that and encouraged it. Besides, the portrait of Lotz's insolvency is that of today, not of then. *Then* he did not have financial statements, because his books were not posted and, as Hatfield said, were in "deplorable condition". True he was short of cash, but he did not know he would be unable eventually to pay his obligations or continue in business. He had an equity in large unearned premium reserves. He was to increase his volume and get a prepaid commission on it. He hoped to get a bank loan. His attorney, Mead, had worked out a "target plan" involving reduction of expenses, sub-agents' commissions and loss ratio. This was communicated on November 24 in Oakland to Hatfield and other representatives of Mid-States. (R. 1007, 1008.) The result was that on November 27 Lotz gave Mid-States the letter (Plf's Exh. 6; R. 230-232) in which he appointed Mid-States' representative Kledzik "to be my general manager with full power and authority to run my agency" and in which he agreed to the economies referred to in Mead's target plan. The letter was dictated not by Mead but in large part by Hatfield and Czar. It was accompanied by an assignment. Hatfield and Czar then stated that if the plan were put in effect the Lotz agency would in their opinion, within twelve months, and certainly not to exceed twenty-four, be completely in the black. (Tes-

timony of Mead, R. 1009, 1013.) Hatfield himself testified he then thought the situation could be worked out and that Mid-States would try to help.⁴ (R. 379.)

Against this, appellant presents various arguments which we think were arguments for the trial court, not for this court after adverse findings below based on substantial evidence. But we will mention them briefly.

They say that prior to August a check of Lotz to American Fidelity for \$53,301.00 had been returned unpaid. But it turned out that incoming checks, against which Lotz's check was drawn, had not yet cleared, and Lotz's check was eventually honored. (R. 761.)

They say that by Lotz's agreeing to pay his indebtedness to American Fidelity by September 15 he was accelerating the due date. There was no wrong in this. What they did was terminate the agency agreement with its credit period and set up a liquidation schedule. That was purely a matter of contract between them and they could do as they wished. Besides, American Fidelity did not get paid by September 15, nor did it expect to, the date being purely "psychological". (R. 808.)

⁴Mid-States argues as if this were a *proposed plan* which never went into effect. The November 27 letter, which was dictated chiefly by Mid-States' officials, shows differently. In it Lotz says he has "as of this date" hired Kledzik as his manager, etc.; and Lotz testified that he was paid a salary and expenses "for a month or so", and also: "The checks were handed to me. I was paid that." (R. 648.) It was cancelled a short time later by Titus, but it did go into effect November 27.

They argue that Lotz paid large advance commissions to sub-agents while insolvent. But that is the way he had been getting his business all along, these commissions in 1951 amounting to 26% on Mid-States' business and to 26.7% on all companies represented by Lotz. (R. 994, 995.) This responds also to their complaint that Lotz paid a commission of 25% on the Public Service business; that was 1% *less* than the average sub-agent commissions paid by him.

Mid-States argues that on August 13 the amount of premiums which remained uncollected by Lotz on business which he had written for American Fidelity was less than the amount he owed American Fidelity. But there were other sources of funds then in prospect to make up the difference; these included commission income anticipated by Lotz (with a 15% prepaid commission from Mid-States), his equity in large unearned premium reserves and the prospect of a bank loan. Moreover, for this action the facts must be viewed as of then, not as of now, and to determine the state of mind of parties at that time it is a fallacy to quote figures and data developed by subsequent accounting and events.

They argue that a tape was run showing an excess of payables over premiums receivable. Hart testified it was not shown to him. (R. 847.) Anyhow, it ignores other resources such as his equity in premium reserves, anticipated prepaid commissions on increased volume, and bank loan then being negotiated. It also ignores the state of Lotz's books. It disregards also the fact that even in November Hatfield thought Lotz

would be able to work it out. The error is to impute present knowledge to persons in the situation then existing. To charge fraud is serious, and to say the least the events must be viewed in their context of contemporary circumstances, knowledge and intent.

Moreover, Mid-States, which is the complaining party here, must have known that Lotz habitually operated with a balance sheet deficit because of his kiting which they permitted him to engage in, and therefore that the fatal thing was to stop him.

Public Service Rewrite.

As a part of its argument on this point, Mid-States treats separately the Public Service rewrite and presents a variety of arguments on it. They argue that Lotz received only 75% of the premium but had to pay 85% of it to Mid-States. But he had been paying such commissions all along while owing 100% of the premium to the companies. He had been doing this by virtue of the "float" which Mid-States had told him to use from the beginning; and he had commission income accruing from prior business.

They say the Public Service business was sub-standard. But the insurance he had written for Mid-States had been chiefly sub-standard. (R. 300.) They also complain that he had never done a rewrite like this before. But there was nothing in his contract which made a rewrite improper. They say Lotz did not discuss it with Hatfield until it was written. His contract did not require him to do so, and he never got Mid-States' approval before he wrote insurance

for them. Lotz so testified (R. 700, 701) and added, "I operate almost as a company, with full authority. I had a right to reject or accept any applicant and I operated on that basis. I operated almost the same as a company with full power to do about anything we wished".

They argue that Lotz was acting for adverse parties without disclosing the facts to permit Mid-States to judge regarding the transaction. He was acting as agent for Mid-States, within his powers as such agent. And Mid-States knew he was also agent for other companies. The underwriting was not initiated by American Fidelity. (R. 775; 442; 443.) Lotz disclosed the underwriting in his reports to Mid-States.

Finally, they contend that substantially all the premiums on the rewrite were paid to American Fidelity and that American Fidelity knew the source of the money and Mid-States' right to the funds.

The first answer to this is that even if these premiums were traceable to American Fidelity, it would not give rise to a cause of action because that would presuppose that the premiums were trust funds. We submit that they were not trust funds, and not being so, they belonged to Lotz and he could use them to pay his obligations.

But they have not even traced the funds as they say they have. Mid-States says (its brief, p. 11) that of \$96,000 of Public Service premiums, \$90,000 were paid to American Fidelity; and Anglo says (its brief, p. 24) that substantially all were so paid. The record

shows \$53,000 traced in this way, not \$90,000;⁵ and the trial court did not find, as Anglo says, that “the bulk” of the Public Service money was paid to American Fidelity, but a “part” thereof. (R. 130.)

⁵The only items traced by Mid-States in the evidence are two Public Service premiums received by Lotz, and two payments made by him to American Fidelity which they attribute in part to these receipts. The figures are contained in Lotz’s account with Anglo for September. (Plf’s Exh. 23.) Mr. Horton, Mid-States’ auditor, located the two items of Public Service premiums as \$5,547.25 included in the deposit of \$14,790.16 on September 7 and \$67,500 in the deposit of \$68,811.84 on September 14. He identified the two payments to American Fidelity as \$15,000 on September 11 and \$60,000 on September 17. But in trying to trace the outgoing money to the incoming, all incoming money not identified as Mid-States’ must be allowed for, and all outgoing payments not connected with American Fidelity must likewise be allowed for, because the burden is on Mid-States as the party doing the tracing.

The results, then, are these: On September 11 Lotz paid American \$15,000. How much of that is traceable to Mid-States? There was \$3,009.70 of unidentified money in the account on September 7. Then \$14,790.16 was deposited, of which only \$5,547.25 was connected with Mid-States, so \$9,242.91 of that deposit was unidentified money. On September 11, \$1,062.64 of unidentified money was deposited. This makes a total of \$13,315.25 of unidentified money in the account when the \$15,000 was paid to American, from which the conclusion follows that not more than \$1,684.75 are shown to be attributable to Public Service premiums. (We ignore four expenditures totalling \$1,429.19 on September 7, because they are unidentified and therefore no more chargeable to American than to Mid-States.)

Doing the same with the other two items: On September 13 there was \$2,079.82 in the account. There was then deposited \$68,811.84, of which \$67,500 was Public Service, leaving \$1,311.84 unidentified. On September 14, \$4,951.98, unidentified, was deposited. The total of unidentified money is therefore \$8,343.64. American was then paid \$60,000, of which the balance, or \$51,656.36, is all that is traceable to the Public Service premiums. This makes \$53,341.11 traced in this way to Mid-States, not \$90,000.

Anglo attempts to trace through testimony a portion of a \$15,000 payment to American Fidelity on September 26, but the bank statement for that period was not introduced and the purported tracing is basically vitiated for failure to make allowance for unidentified money as in the cases of the other checks above mentioned.

But the tracing is not valid. Premiums collected by Lotz on Mid-States insurance were not earmarked as belonging to Mid-States. In fact he did not collect the full premium but only the net after commission. Sixty days after the close of the month in which insurance was written Lotz owed Mid-States an amount equal to the premium, regardless of what he collected. It was debt; not the mere transmission of someone else's money.

Even if these Public Service premiums had been trust funds, it would be fallacious to pick them out of the whole course of dealing and try to trace them to American Fidelity. If premiums were to be traced as belonging to a given company, the only proper procedure would be to go back to the beginning when Lotz began his operations for both companies and adjust his account with both companies on every transaction. That is, every time he paid a dollar of premium money for sub-agents' commission or expenses it would have to be allocated to see how much of each company's money he got (and he represented other companies besides Mid-States and American Fidelity (R. 621) and their interests would also have to be considered). Every time any of his own funds went into the account (by transfer from operating account or crediting of commissions) such amount would also have to be allocated to see how much should be credited to each company. Every time he paid any company anything, another adjustment would have to be made, because he paid per billings, not per the actual state of the companies' account. On

an actual tracing of the jumbled transactions, it would doubtless be found that Mid-States had received some money traceable to American Fidelity premiums and this would have to be offset against any Public Service money which came to American Fidelity in the period mentioned.⁶

Of course, in view of the indiscriminate commingling by Lotz, such a real, over-all tracing would have been so complicated as to be impractical—but, that being so, it is fallacious to pick out a very small segment of the dealing and to purport to do a tracing job on that segment to the neglect of the rest of the dealing.

Leaving the Public Service transaction and looking at the course of dealing as a whole, there is another important consideration to mention. Running through the entire argument of Mid-States is the contention that Mid-States was unaware of the insolvency and was therefore a victim of its agent's acts. But the trial court found differently. It found that Mid-States was to a great extent responsible for its loss and for the activities of Lotz which caused the loss. (R. 125.) This finding was based on more particular facts found by the court (R. 120-125) and supported by the evidence, namely—that Mid-States had advised Lotz from the beginning that since he had no capital and was on a retrospective commission basis, he could use

⁶When Lotz began to write for American Fidelity, he did not abandon Mid-States. In fact from January to August, 1951, while he wrote \$340,000 for American Fidelity, he also wrote \$140,000 for Mid-States. (Plf's Exh. 23, p. 13.)

premiums for his expenses; that they regarded him as an independent contractor in keeping his books and bank account; that he handled premiums as his own money and was permitted to act as a debtor; that he was known by Mid-States to be inexperienced and unreliable as an insurance agent, Titus having said he had "to be watched very carefully on a day to day basis", and "If we can't get better representation in California than Joe Lotz, we will never stay out of trouble" (R. 735; 351); that he was habitually late in remitting to Mid-States and had to be continually pressed for payments; that his expenses and sub-agents' commissions in 1951 totalled over 40% and his loss ratio over 64%; and that, in spite of these facts, Mid-States urged him to write more business for it, which business was written and currently reported to it.

Mid-States cites the doctrine that a principal's neglect of his affairs is no excuse for similar neglect by his agent, and then says (p. 49), "In this case, of course, there is no claim whatsoever that Mid-States was itself negligent in attending to its business". This is a gross error, because this point was an issue in the case on which evidence was presented, argument was offered and findings were made. The fact is that Mid-States was not only negligent, but more than negligent. With the facts of which it was aware, it must have known that two things would render Lotz insolvent: causing him to increase his writings, and then stopping him, which terminated the kiting. Its action was therefore a deliberate disregard

of consequences which is explainable only on the ground that it was trying to get Lotz back and was willing to take the risks in the hope of ultimately favorable results.

They say the trial judge found that Lotz was a sick man and an inefficient agent and that from this it appeared that the trial judge thought Mid-States would not be entitled to recover if a breach were due to such factors. The inference as to the trial court's reasoning is not warranted. The factors mentioned were cited by the court as bearing upon the reliability of Lotz's statements and on the responsibility of Mid-States for its loss since it was aware of Lotz's condition.

They say that since the trial court found that Lotz's sole object was to pay his debts and stay in business, the trial court failed to realize that though motivation may be good, fraudulent intent as to the means may still exist. We reply that the trial court found, both generally and in detail, that defendants here were not guilty of fraud.

Mid-States says that Lotz had been guilty of no misconduct and was paid up with them up to August, 1951. But, as it also says, he was insolvent on August 1, 1951. Thus the reason he had paid Mid-States was that he was kiting, operating on the float. And while Mid-States is correct in saying that he had been guilty of no misconduct in the period mentioned, that is because his method of operations had been with its consent.

In view of these considerations, we look again at Mid-States' charge that being insolvent, Lotz wrote large amounts of insurance for Mid-States and used the premiums to pay another creditor, leaving the loss with Mid-States; and we say that if we eliminate accounting for premiums as trust funds, the charge falls. What he did with the premiums is an essential part of the charge. And the premiums not being trust funds, the tracing of any of them to American Fidelity is not actionable. A debtor may pay one creditor in preference to another even though he is insolvent. *California Civil Code*, Sec. 3432; 8 *Cal. Jur.* 1056.

The point is that trust is a serious matter. If one wants another to be one's trustee, one must act accordingly. In such case, rigid results follow. The beneficial title to the money is in the beneficiary, and the trustee has a bare legal title, burdened with strict duties of segregation, preservation against use by the trustee for his own purposes, and so on. Relax this earmarking; permit the trustee to commingle and use as his own; and radical results follow. The fund is no longer a trust fund; it belongs to the other person and it is available for his uses.

This does not visit an unjust penalty on the company. The company has freely chosen a course of dealing, from which the result follows. It cannot make that free choice, and then seek legal relief when a loss occurs.

We now take up the remaining contentions of Mid-States.

The American Fidelity Rewrite.

It says that it was induced by misrepresentations of Hart to agree to rewrite \$61,000 of American Fidelity insurance. It cites two statements made by Hart to Hatfield in the telephone conversation in which the agreement was made. The first was this. Hatfield said, "You didn't kick them out, I know that". Hart replied, "* * * no, we didn't kick them out. Of course not." (R. 222.) They argue that this was a misrepresentation. But in fact in New York on August 13 Lotz had asked Hart for a prepaid commission, which had been refused because under its management contract with American Fidelity, American Plan could not grant a prepaid commission. (R. 764.) So Lotz went to Chicago and got a prepaid commission from Mid-States. Lotz's letter to American Plan so states; it says, "Pursuant to my discussion with your Mr. Hart in New York on August 13, 1951, and particularly in view of your inability to comply with my request for a pre-pay commission, I hereby terminate my agency agreement with American Fidelity * * *" (R. 639). Hatfield initiated the topic, not by a question, but by the statement "You didn't kick them out, I know that." Hart merely acquiesced. And when Lotz was negotiating the prepaid deal with Mid-States in Chicago, he told them he had called on Hart in New York where he had tried to get a better deal and had failed. (R. 701.)

Mid-States also contends that Hart deceived Hatfield in saying that Lotz had written some insurance for American Fidelity in September, whereas such

writing had ceased in August. The statement was made on the telephone on the spur of the moment in answer to a question of Hatfield. Hatfield must have known it was mistaken because Lotz had written him September 8, "We are not sending the American Fidelity and Casualty Company any business whatsoever—you are getting it all." (R. 292.) The materiality is also very questionable, since Lotz had continued to write for American Fidelity until a few days prior to September, namely to August 22. (R. 895.)

The trial court in its opinion said (R. 112, 113):

"The evidence discloses that this conversation took place on October 31, 1951. In order to understand the import of Hart's words, one must take into consideration that Mid-States was anxious to get all of Lotz's business, and that on September 8, 1951, Lotz had told Mid-States that his agency was no longer sending American Fidelity any business whatsoever.

Taking into consideration the fact that Hart and Hatfield were both experienced business executives in large competing insurance companies, it is the court's view that Hatfield did not rely on Hart's representations. Additionally, the court carefully read the conversation between Hart and Hatfield, and gives little weight to the argument that Hart's words were fraudulently intended. The conversation had must be read with the entire record of the case in mind in order to give the words contained therein their proper perspective and significance."

We submit that the court's finding on this subject is supported by the record.

Control of the Agency.

Mid-States charges that American Fidelity took control of Lotz's agency. The liquidation agreement between Lotz and American Fidelity (Plf's Exh. 17; R. 456-460) contained this clause: "The Manager (American Plan) hereby appoints Ralph L. Smead as its representative and Lotz agrees that the said representative shall have full authority over the finances of the agency *and in connection with the matters referred to herein* subject to instructions of the Manager." (Emphasis supplied.)

The court found that this did not give Smead full control over the agency and its finances but only insofar as they related to American Fidelity and the payment of the debt to it. (R. 132.) This is indicated by the phrase "and in connection etc." in the agreement. It is also consistent with the other terms of the agreement which provide for payment of the debt and for various economies to be observed until the debt was paid, and with the provision that if Lotz defaulted under the agreement American Fidelity could exercise its right "to take over and vest in itself Lotz's records, use and control of expirations".

The Machado Case.

Appellant stresses *Machado v. Katcher*, where the court found a conspiracy to defraud existed. After considering that case, the trial court in its opinion herein said (R. 106):

"Of great significance in the Machado case is the fact that there was testimony that the third party

(Lewis) knew that Machado and other creditors could not be paid. Further, a motive for favoring Lewis is indicated by the intimacy between Lewis, Katcher, Sr. and the corporation. For the purpose of distinguishing the instant case, it is the court's view that the defendants were not aware that Lotz's creditors could not be paid. Nor was any motive shown for Lotz to engage in a fraudulent plan, i.e., close relationship to Fidelity and Casualty; dislike of Mid-States. Lotz's sole intention as adduced by the court from the evidence in this case was to pay his debts, and thereby continue in business."

The *fraud* in the *Machado* case was further evidenced by giving the daughter of the seller a post-dated check without her realizing it.

Summing up, therefore, the situation is this. An insurance company hires a man as its agent under a contract whereby he has to pay all his expenses and the full amount of the premium and wait until the insurance runs out before he gets any income. They know he has no capital and they tell him he is to use premiums for his expenses—thereby transforming the obligation from trust to debt. The kiting creates a deficiency of assets in the agency. Owing to this deficiency he is habitually late in making his payments and the company has to put pressure on him for almost every payment. They inspect his business frequently. They know he is unreliable. They know his loss ratio. He shifts the major part of his business to another company. They want to get him back. To do that they give him concessions and ask for a large

amount of business. He writes the business and reports it to them. His insolvency increases. They stop him and liquidate him. They then seek to recover their loss from the other company, whom he paid. They charge that he and the other company plunged him into deeper insolvency, whereas the other company received only what was due it, and the insolvency of the agent was due to the manner in which the complaining company, in its desire to get back the agent, permitted him to act. Under these circumstances, we submit that there was neither a conspiracy to defraud nor acts otherwise giving rise to a cause of action by the insurance company which suffered the loss against the creditor who was paid. On the contrary, the loss was attributable to the manner in which the principal permitted the agent to operate.

The ultimate explanation of the case appears to lie in the fact that Mid-States was so determined to get Lotz's business that it knowingly took the risk, and, having lost, comes to court as an innocent, abused party seeking reimbursement from the vigilant creditor who was paid. That is the way it appeared to the trial judge, who, after hearing all the evidence, said (R. 113):

“From a study of the entire record in this case the court concludes that plaintiff has not sustained the burden of proving a conspiracy to defraud between the defendants. The underlying factor which motivated both insurance companies in this case was to secure all the business possible in this State, and it was this anxiety for business which caused a great loss to one of them.

The fundamental basis of plaintiff's case is the written statement of Smead, and Smead's word is impugned by his own admission of untruthfulness. The course of dealing between the parties discloses a method of handling the Lotz agency which was contrary to a trust relationship, and in the absence of a showing of a fraudulent conspiracy on the part of the defendants, plaintiff cannot prevail. Lotz in paying Fidelity and Casualty preferred the creditor who was vigilant and actively pursued collection of its debt."

Before leaving Mid-States' case, we take note of its complaint that the court did not give it judgment against Lotz for an undisputed balance. While we do not represent Lotz, it appears to us that the reason was that Mid-States sued him for fraud, not contract.

II.

THE ANGLO CASE.

A. THERE WAS NO CONSPIRACY TO DEFRAUD.

It was conceded by Anglo at the trial that its case against defendants depended upon the establishment of the charge of a basic conspiracy against Mid-States. In this respect Anglo's counsel stated:

"If there was a conspiracy as has been alleged and which we believe there was, the Bank was a party injured in carrying out that conspiracy.

* * * Any party injured in carrying out the conspiracy has a charge or claim against the parties who are responsible for that conspiracy." (R. 284, 285.)

The discussion on this point was closed as follows:

“The Court. And unless this so-called conspiracy is established, counsel concedes that of course it wouldn’t prevail. Am I correct in that?”

Mr. McCallum (attorney for Anglo). That is correct, your Honor.”

Since the court found no conspiracy to defraud, we believe that Anglo’s case falls on that ground alone.

But there are additional reasons for that result, which we will now discuss.

B. NO FRAUD WAS PRACTICED ON ANGLO.

Anglo presents this point as if it were a simple case of a principal denying to its agent authority to endorse checks and of a subsequent representation by the agent that he possessed the authority thus denied to him. But that does not correctly portray the situation. The facts were these:

On August 27, Lotz wrote Hatfield asking for a corporate resolution regarding his authority to endorse checks, saying that his bank (then Central Bank) wanted it. (R. 287, 288.) Before receiving a reply, Lotz changed his account from Central to Anglo. On September 5, Hatfield wrote Lotz, saying:

“I am not saying that we will not grant you authority but I want to suggest that the simplest way to eliminate your problem would be for you to instruct whatever accounts you have who presently make their premium payment checks payable to Mid-States that instead such checks should be made payable to you. In this manner there

could be no question about your endorsing the checks and placing the funds in your trustee account." (R. 289; emphasis supplied.)

On September 8, Lotz replied, saying:

"Now, regarding my request for authority to endorse checks made payable to the Mid-States Insurance Company, we do not have very many like this, and those that we do have, we can have them made payable direct to me." (R. 291, 292.)

On September 10, Hatfield wrote Lotz supplementing his letter of September 5, saying:

"I overlooked giving you the most important reason in that letter as to why *we are reluctant* to grant you the authority you requested. That reason is that under our blanket bond we do not have any protection if we grant authority to any person not on our payroll to endorse checks." (R. 291; emphasis supplied.)

Therefore, while it is true that Hatfield did not affirmatively grant the authority requested, he did not deny it either. In fact, he expressly refrains from denying it and limits himself to saying he is *reluctant* to grant it because of the bond problem.

Besides, he made it clear that he did not want to prevent the funds from getting into Lotz's account, for he suggested that Lotz cause premium checks to be made payable to himself. Therefore the problem in respect of the manner of collecting the funds was one of form, not of substance.

Moreover, under his general agency agreement, Lotz had the right to endorse the checks. The agreement provided that Lotz was given "power and duty to collect, receive and receipt for premiums". (Plf's Exh. 2.) That was a bilateral contract which bound Mid-States as well as Lotz. The power and the duty to collect premiums carried with them the right to do what was necessary to make the collection, and if assureds insisted on making their checks payable to the principal the only way Lotz could collect the premiums as required by his contract was to endorse his principal's name. By making the endorsement, therefore, he was exercising a right which he would have possessed even if Hatfield had tried to deny him the power. This is especially true in view of the method of operations, whereby Lotz had the right to the use of the money during his credit period. To say otherwise would in effect mean that Lotz should have forwarded the checks to Mid-States in Chicago for their endorsement and return to him—all of which would have been a completely idle act.

The law is in harmony with this, because it is common doctrine that a general agent has the right to collect premiums on insurance written by him. The rule is stated in *Stuyvesant Ins. Co. v. Ayers Nat. Bank* (1932), 268 Ill. App. 395, at p. 401:

"authority was expressly conferred upon the agency by the certificate of authority to collect and to receive the moneys due the insurance company * * *; and it seems apparent that the agency could not have collected the money represented by the premium checks, which they were authorized to collect, without indorsing the checks.

We conclude that the authority to indorse the name of the insurance company for the purpose of collecting the money was necessarily implied. Moreover, under the contract constituting the Corn Belt Agency the agent of the insurance company * * *, the Corn Belt Agency became a general agent of the insurance company; and as such general agent, possessed all the powers of a general agent. A general agent has implied power to do those things necessary and proper to be done to carry into effect the purpose and scope of the agency business and to transact the business of the principal for which an agent is constituted in the usual and customary way; and as the principal could and would usually have done if the principal had been present. (Authorities.)

General authority to conduct a business involving the acceptance of checks will of necessity involve implying authority to take and indorse such paper in the course of the business intrusted to the agent. 2 Corpus Juris, 629 (note a).

It may be further pointed out that one lawfully in the possession of a check may present it for payment; and payment to him will be valid; and the fact that it had not been indorsed by the owner is of no substantial importance if the person to whom payment is made was in fact the agent of the owner to receive payment; and the payment to such agent will be valid without indorsement. 1 Danielson Negotiable Instruments, Sec. 572-574. *Shaffner v. Edgerton*, 13 Ill. App. 132."

To endorse checks, Lotz used a stamp, as follows (Intervening Plf's Exh. 5):

PAY TO THE ORDER OF
THE ANGLO CALIFORNIA NATIONAL
BANK
90-22 OAKLAND MAIN OFFICE 90-22
AMERICAN FIDELITY & CASUALTY CO.
WEST AMERICAN INS. CO. of L.A.
MID - STATE INSURANCE CO.
JOE LOTZ, TRUSTEE

Mid-States knew he used this stamp. (R. 697, 698.)

In a conversation at the Central Bank, while Lotz was still banking there, Lotz's operations were discussed, and when someone asked whether Lotz had power to sign checks, Hatfield said "Yes". (R. 712.)

After receiving Hatfield's letter, Lotz tried to get checks payable to him. He testified, "I was trying to. I was trying to get every agent to make these checks payable to me." (R. 713.) At times he failed. In the case of one sub-agent, for example, a Chico man (a check of whom was involved in the Anglo case), Lotz would get one check representing premiums on policies in several companies for which Lotz was agent, but the sub-agent would make the check payable to *one of the companies*. Lotz said, "I had no time to run back and get those checks straightened out because the companies wanted money. So I put the stamp on them and deposited them, and I felt the general practice which I had been led to believe—I was general agent, with all the authority I had, that he could put the stamp on there, because they wanted my checks." (R. 713, 714.)

The trial court found that Lotz believed he had authority to endorse and that he and the other de-

defendants did not intend to deceive Anglo or believe that Anglo was being exposed to any liability and that no fraud was practiced on it. (R. 139.) We think that finding was substantiated by the facts.

Another reason why Anglo has no case is that it was not liable to Mid-States.

C. ANGLO WAS NOT LIABLE TO MID-STATES.

Anglo's claim against defendants was admittedly conditioned upon Anglo's being liable to Mid-States for accepting Lotz's endorsement of the checks payable to Mid-States. The pleadings show this. In action 31311 Mid-States sued Anglo on the checks, which totalled \$99,021.10. (R. 3-7.) Anglo answered, setting up various defenses, including the defense that under his agency agreement Lotz had authority to receive premiums and endorse checks, that he had ostensible authority, and that Mid-States was estopped from denying the authority. (R. 24-34.) Anglo then filed in action 31311 a third party complaint against American Fidelity and the other appellees herein in which it repeated all the allegations of conspiracy which Mid-States had pleaded against defendants in action 31496 and alleged that it too was an object of that conspiracy and asked that if it were held liable to Mid-States on the checks it have judgment against defendants for the amount thereof. (R. 65; also 63, 64.) In action 31496 Anglo filed a complaint in intervention against defendants to the same effect as its third party complaint in action 31311. (R. 50-64.)

The reason why Anglo's claim against defendants was conditional on its being liable to Mid-States was

that if it were not so liable it would not have been damaged.

The issue of Mid-States against Anglo was first tried separately, before Judge Harris. Following the trial, the case was briefed and submitted. Pending submission and without a decision of the case, Anglo consented to a judgment against it for \$37,500, which sum it is now trying to recover herein. Thus there has been no adjudication of Mid-States' claim against Anglo.

And that issue was not litigated in this trial. As Anglo's counsel said, "I am not trying to try the so-called Anglo case". (R. 669.)

In the suit *against it*, Anglo argued strenuously—and we think correctly—that it was not liable to Mid-States. In doing so, it asserted all the grounds above mentioned, i.e., that Lotz had the right under his contract to collect premiums and to endorse checks, that as a general agent he possessed such power, and that Mid-States was estopped to deny his authority by years of approving his conduct.⁷

From these facts we conclude that Anglo was not liable to Mid-States and on this ground also its suit against these appellees fails.

CONCLUSION.

The trial court has found no conspiracy. It has done so on evidence which was in large part in con-

⁷Lotz had banked with Anglo for years, then had transferred his business to the Central Bank, and had just returned to the Anglo before the transactions in question.

flict. Conspiracy being a matter of intent or design, it is especially a matter for the trial court to determine. The burden of proof was on plaintiff. The evidence must be viewed most favorably to the trial court's conclusion that the burden was not met. As so viewed, it clearly substantiates the trial court's determination.

While Anglo's case falls with the ruling on conspiracy, it also falls because Lotz had authority to endorse checks, from which it follows that he practiced no deceit and Anglo was not liable to Mid-States and therefore not damaged.

In our brief in the trial court we pointed out that Mid-States' theory of damages was radically mistaken and that even if Mid-States had been entitled to recover, the damages recoverable could not have been more than \$65,000. We still assert that, but the point is immaterial if the judgment of the trial court is affirmed, which we think it should be.

Dated, San Francisco, California,
November 14, 1955.

Respectfully submitted,

E. D. BRONSON,

HAROLD R. MCKINNON,

BRONSON, BRONSON & MCKINNON,

*Attorneys for Appellees American
Fidelity and Casualty Company,
Inc. and The American Plan Cor-
poration.*

In the
United States Court of Appeals
For the Ninth Circuit

No. 14695

MID-STATES INSURANCE COMPANY, a
corporation, and THE ANGLO CALIFOR-
NIA NATIONAL BANK OF SAN FRAN-
CISCO,

Appellants,

vs.

AMERICAN FIDELITY AND CASUALTY
COMPANY, INC., a corporation, THE
AMERICAN PLAN CORPORATION, a
corporation, MARK HART, JOSEPH
LOTZ and RALPH L. SMEAD,

Appellees.

Appeal from the United
States District Court for
the Northern District of
California, Southern Di-
vision.

**REPLY BRIEF FOR APPELLANT, MID-STATES
INSURANCE COMPANY.**

LEWIS SCHIMBERG,
MAYNARD GARRISON,
2200 Shell Building,
San Francisco 4, California,
*Attorneys for Appellant, Mid-
States Insurance Company.*

WALLACE, GARRISON, NORTON & RAY,
Of Counsel.

FILE

DEC 23 1955



INDEX.

	PAGE
Introduction	1
Argument	4
Smead's statements	4
Lotz' physical condition.....	5
Lotz' fiduciary duties.....	6
The trust fund theory.....	7
The loss ratio.....	8
Lotz' insolvency	9
The American Fidelity Rewrite.....	11
Smead as American Fidelity's and American Plan's agent	12
The Machado case.....	13
The measure of damages.....	14

AUTHORITY CITED.

American Tobacco Co. v. The Katingo Hadjipatera, 194 F. 2d 449 (1951).....	2
---	---

In the

United States Court of Appeals

For the Ninth Circuit

No. 14695

MID-STATES INSURANCE COMPANY, a
corporation, and THE ANGLO CALIFOR-
NIA NATIONAL BANK OF SAN FRAN-
CISCO,

Appellants,

vs.

AMERICAN FIDELITY AND CASUALTY
COMPANY, INC., a corporation, THE
AMERICAN PLAN CORPORATION, a
corporation, MARK HART, JOSEPH
LOTZ and RALPH L. SMEAD,

Appellees.

Appeal from the United
States District Court for
the Northern District of
California, Southern Di-
vision.

REPLY BRIEF FOR APPELLANT, MID-STATES INSURANCE COMPANY.

INTRODUCTION.

Since much of the argument presented by appellees, American Fidelity and American Plan, in their brief are fully covered in the initial brief filed on behalf of Mid-States, this reply brief will be limited to a consideration and discussion of only those points which we believe are essential to this court's consideration of the essential facts

and the theory relied upon by American Fidelity and American Plan in support of the judgment of the trial court.

At the outset, we desire to emphasize that Mid-States does not contend that this case is triable *de novo* in this court, as was apparently the theory of the appellant in *Ruud v. American Packing etc. Co.*, 177 F. 2d 538 (1949), cited in the brief for American Fidelity and American Plan. We contend, rather, that such evidentiary weight and such convictional certainty are present from the *undisputed evidence* in this case that it must be concluded that the trial court failed to make a sound survey of or to accord the proper effect to all the cogent facts, even after giving due regard to its appraisal of witness credibility where that factor is involved.

As we pointed out in our original brief, a number of findings of the trial court relied upon as errors are determinations of mixed questions of law and fact, and we contend that these findings, together with the court's conclusions of law and the judgment entered by it, resulted from erroneous inferences or conclusions drawn from undisputed facts or from an erroneous view of the law. That this court may review such findings is well established by the authorities cited in our original brief. However, in view of its particular application to the record in this case, we refer here to *American Tobacco Co. v. The Katingo Hadjipatera*, 194 F. 2d 449 (1951), where the Court of Appeals reversed the finding of the trial court that the stowage of certain additional bales of tobacco in No. 3 tweendeck of the defendant ship so impeded ventilation of the No. 3 hold as to cause the fire damage which resulted to cargo stowed there. The court stated, at page 451:

“We are not required, however, to accept a trial judge's findings, based not on facts to which a witness testified orally, but only on secondary or derivative infer-

ences from the facts which the trial judge directly inferred from such testimony. We may disregard such a finding of facts thus derivatively inferred, if other rational derivative inferences are open. And we must disregard such a finding when the derivative inference either is not rational or has but a flimsy foundation in the testimony.”

Since Mid-States has no interest in the third party claim of The Anglo California National Bank of San Francisco against the defendants, this brief will make no reference thereto or to the latter’s brief.

ARGUMENT.

The brief of American Fidelity and American Plan is devoted largely to isolating specific acts or testimony of each of the defendants and ignoring the undisputed facts evidencing the entire course of conduct starting in August, 1951, which gave rise both to Mid-States' loss and its right of recovery. It is true that one can pinpoint certain facts which, if taken alone and not in relation to other acts, might be consistent with permissible conduct rather than either a conspiracy to defraud or concerted action in breach of Lotz' fiduciary relationship to Mid-States. What Mid-States has proven in this case, however, is a course of conduct constituting either or both such actionable wrongs.

There is no question that Smead lied at various times regarding the contents of the statements signed by him in December, 1951, and that the trial court stated that it could give little credence to his testimony. It should be noted that Mid-States, unlike the defendants, never embraced Smead. He was a party defendant and Mid-States called him as an adverse witness. Its position regarding his statements has always been consistent—in both the instant case and Mid-States' suit against the Anglo Bank, Mid-States' position was that the statements were true. *Mid-States, however, does not rely on Smead's statements or his testimony.* There is no dispute in the record that Lotz signed the first statement and that Smead's signature thereon was acknowledged by Lotz' attorney, Mead (R. 928-930). Lotz never denied the truth of this statement. Lotz also wrote out and signed a separate statement, and by his own admissions in the record corroborated many of the facts contained in that and subsequent statements. It

is particularly significant that Mead, although he was Lotz' attorney and was representing Smead as Lotz' employee until after all the statements in the record had been given, was thoroughly familiar with Lotz' affairs, knew the statements had been given and at no time denied their truth (Mid-States Br. 45). American Fidelity and American Plan devote considerable space in their brief to emphasizing the manner in which the December 6 statements of Smead and Lotz were taken. They say the evidence shows that the statements were not read in Mead's office and were not taken in his presence as he had been promised. The only important question, however, is the truth of the statements. Mead, notwithstanding his testimony that the statement of December 6 was not taken in his office, acknowledged the signature of his client allegedly without reading the statement, and thereafter continued to represent his client in connection with all of the matters relating to the latter's agency operations. He testified that notwithstanding such representation he never read any of the statements, although he knew, of course, they had been given.

American Fidelity and American Plan further comment at length on the alleged physical condition of Lotz and his self-serving testimony that he was influenced by Smead's point of view and was in a "bad nervous condition" and unable to remember certain details regarding the facts set forth in the statements. Yet these defendants fail to mention or even recognize the undisputed evidence of Lotz' thorough familiarity with the conditions and workings of his Agency, his maintenance of the black book in which he currently recorded the payments being made to American Fidelity on its account, his preparation of a supplemental statement on December 7, 1951, without the aid of anyone else, his knowledge of the additional statement written by Smead on December 7, 1951, his presence when Plaintiff's

Exhibit 22 was prepared and the final corrections made therein, and the many other undisputed facts reviewed in detail in Mid-States' original brief (Mid-States Br. 28-30). It is significant, also, that American Fidelity and American Plan do not deny Lotz' legal responsibility for his own acts as well as for those of his agent Smead. That such liability exists, regardless of the physical condition of Lotz or his negligence or inattention to business, has been amply demonstrated in Mid-States' original brief. The trial court completely disregarded this rule of law. American Fidelity and American Plan would have this court conclude that Lotz' physical condition and purported nervous state (about which there is no evidence other than his own self-serving testimony) were considered by the trial court as bearing upon the responsibility of Mid-States for the loss it incurred "since it was aware of Lotz' condition". None of the facts relating to Lotz' condition from August to December, 1951, were known to Mid-States until the end of November or early part of December, when all of the facts relating to the course of conduct of the defendants were first disclosed to Mid-States.

American Fidelity and American Plan stress the early history of Lotz' activities prior to his becoming general agent for Mid-States, the delinquencies in his account from time to time with Mid-States and his use of premium funds to pay operating expenses and subagents' commissions, and they argue that these facts support the trial court's findings and conclusion that no fiduciary relationship existed between Lotz and Mid-States. At one point (A. F. and A. P.'s Br. 2-3) they argue that Lotz' method of keeping his books was inconsistent with trust; at another point (A. F. and A. P.'s Br. 21) they argue that his tardiness in payments to Mid-States was also inconsistent with trust; but at another point (A. F. and A. P.'s Br. 24) they say these were not the practices which destroyed the trust

character of the agency funds. Of greater significance, however, is the fact that they completely ignore, as did the trial court, the history of Lotz' relations with Mid-States prior to August, 1951, American Fidelity's own investigation of the Lotz agency prior to its appointment of Lotz as its general agent, and the complete lack of any evidence in the record of any wrongful conduct on Lotz' part during those years (Mid-States Br. 21-23). It is submitted that the uncontroverted facts conclusively show that a fiduciary relationship existed between Lotz and Mid-States at all times prior and subsequent to August, 1951, and that there is no evidence in the record to substantiate the trial court's finding to the contrary. This phase of the case and the applicable authorities are fully set forth in Mid-States' original brief.

American Fidelity and American Plan devote a considerable portion of their brief to a discussion of whether or not the premiums collected by Lotz on insurance written for Mid-States constituted trust funds under the applicable law and Lotz' contract of September 1, 1951 with Mid-States, and argue that if they were not trust funds, Mid-States can have no cause of action against the defendants. We do not deem it necessary to extend this brief by further discussion of that question, since both the facts and the law have been amply covered in Mid-States' original brief. We submit that the dealings between Lotz and Mid-States prior to September 1, 1951 have no bearing on the question of whether premiums collected thereafter constituted trust funds. We emphasize, however, that assuming, *arguendo*, that premiums did not constitute trust funds, that fact in no way affected or destroyed the fiduciary character in all other respects of the relationship of Lotz as general agent for Mid-States, or the duties of full disclosure and fair dealing flowing from that relationship. Mid-States' right of recovery is not dependent upon

a finding that premium collections constituted trust funds or upon the necessity of tracing specific premium collections through Lotz' accounts. Hart admitted that his company had no right to participate in the Public Services moneys (R. 877). Evidence of the use of premium funds paid in connection with the Public Service Rewrite was offered as further proof of Lotz' breach of his fiduciary duties to Mid-States and the participation therein of American Fidelity and American Plan, who had full knowledge of the source of the payments. We emphasize this point, notwithstanding a full discussion thereof in Mid-States' original brief, in view of the space devoted in the brief of American Fidelity and American Plan to the nature of premium funds and the problem of tracing. We are also prompted to ask at this point what the American Fidelity Rewrite, which involved no handling or exchange of funds at all, has to do with premium collections or trust funds?

American Fidelity and American Plan argue that "the loss ratio involved no wrong". They state that Lotz' loss ratio on business written for Mid-States after September 1, 1951 was 68.51%, that this was only 3.86% higher than that of the previous year, and that it was much better than the loss ratio on the business written by Lotz for American Fidelity, which was 79.51%. They argue further that accordingly the losses did not invade the 14% of the premium retained by Mid-States and that it got a better class of business than Lotz wrote for American Fidelity. These are not correct statements of the evidence. American Fidelity's own auditor, Mr. Marks, testified that he had made no breakdown of the loss ratio attributable to the policies taken over in the Public Service Rewrite. And the evidence is undisputed that the loss ratios on the business written by Lotz for Mid-States (which included the Public Service and American Fidelity Rewrites) for the

four months subsequent to August, 1951, averaged 92.6% (R. 412). The figure of 68.51% given by American Fidelity and American Plan covers the loss ratio from September 1, 1951 "and onward" (R. 979) and includes the year 1952. The great bulk of the policies written by Lotz after September 1, 1951 in Mid-States (including the Public Service and American Fidelity Rewrites) was cancelled by Mid-States in the latter part of December, 1951 and in January, 1952. The loss ratio for 1952 was only 36% (R. 413). Thus, the figure of 68.51% stated in the brief of American Fidelity and American Plan is wholly inaccurate and reflects the reduced loss ratio in 1952 after the cancellation of the business written by Lotz in Mid-States between September and December, 1951, the loss ratios on which before cancellation were in excess of 100% for three of the four months, and average 92.6%.

Although there is no dispute in the record as to Lotz' insolvency throughout the period from August 1, 1951, to the termination of his Agency by Mid-States, American Fidelity and American Plan argue that the defendants did not know until December, 1951, that Lotz was insolvent or unable to meet his obligations. They comment on the prospects of a loan which Lotz was seeking from the Central Bank of Oakland, the more favorable deal he received from Mid-States in September, 1951, under which he was to receive a 15% prepaid commission, and a purported \$60,000 equity of Lotz in a \$300,000 unearned premium reserve with American Fidelity. They argue that Mr. Hart was under no great concern with respect to liquidating his balance and that Mr. Feller and Lotz felt the same way. However, the undisputed facts are that the receivables on American Fidelity business in August, 1951, were substantially less than the premiums owing by Lotz to American Fidelity on that business, that the loan was never

obtained, and that after American Fidelity's indebtedness had been paid Lotz' purported equity in the unearned premium reserve had disappeared. It is submitted that the trial court's finding that the defendants did not know prior to December 1, 1951, that Lotz was insolvent or that he would be unable to meet his obligations to Mid-States is completely contrary to the undisputed evidence in the case. American Fidelity and American Plan knew that Lotz could not pay them the amounts owing to them by September 15, 1951 (the date specified in the agreement terminating Lotz' agency with American Fidelity), that he was unable to procure the loan which had been discussed with the Central Bank of Oakland, and that the only way American Fidelity could possibly obtain payment from Lotz was to place its own representative in Lotz' office to corral all funds coming into the office, and when even that failed, to arrange through misrepresentations to cancel a part of its liability through the device of shifting to Mid-States policies previously written by Lotz for American Fidelity. All of these undisputed facts are discussed in Mid-States' brief and, it is submitted, do not require further repetition here. It is enough to point out that Mr. Hart knew Lotz did not have the money to pay him; that he knew the Public Service checks had been made payable to Mid-States and that American Fidelity was being paid with Public Service moneys; and that at the end of October, 1951, when Lotz' indebtedness to American Fidelity had been reduced from approximately \$247,000 to approximately \$61,000, the only way the balance could be paid or taken care of was through the American Fidelity Rewrite which was consummated after the telephone conversation between Mr. Hart and Mr. Hatfield, in which Mr. Hart made the misrepresentations which induced Mid-States to consummate the transaction. It is difficult to imagine a situation in which greater knowledge

of one's insolvency could be available, unless it is assumed, as the trial court obviously did, that in order to establish knowledge of another's insolvency, it is essential to prove knowledge of the exact amount by which his liabilities exceed his assets. It is submitted that such is not the law, that inability of a debtor to meet his debts as they mature constitutes insolvency, and that knowledge by another of that fact is knowledge of the debtor's insolvency. And in any event, it is clear in the instant case that American Fidelity and American Plan had full knowledge of Lotz' financial condition through the knowledge of their agent, Smead.

The arguments tendered by American Fidelity and American Plan in support of the findings and conclusions of the Court with respect to the American Fidelity Rewrite are unworthy of serious consideration by this Court. There is no dispute in the record as to the exact statements made by Hart during the telephone conversation or that these statements were untrue. We have reviewed these statements and the law applicable thereto in our initial brief. However, we again point out that the misrepresentations made by Hart were not misunderstood or ambiguous terms. They were definite, specific statements of facts known to Hart. The telephone conversation was carefully planned and secret preparations had been made by Hart for its recording prior to placing the telephone call. Hart emphasized and insisted upon a telegram of acceptance specifying that Mid-States would look solely to Lotz for the premiums. Hart's reply as to when the business had been written and his statement that the premiums were not due "under our contract—we have 75 days * * * actually, until December 15" although he knew full well that the contract had been terminated and that payment from Lotz by September 15, 1951, had been in-

sisted upon, his statement that "we didn't kick them out," and his reference to the 15% advance commission that Lotz had hoped to receive thereon when he already knew that the same had been refused by Mid-States, all clearly show that Hart by deliberate misstatements, half-truths and concealments led Mid-States to believe that Lotz' contract had not been terminated, that Lotz was current in his obligations to American Fidelity and that Lotz, and not American Fidelity, had initiated and desired the Rewrite. As pointed out in our original brief, the law presumes under these circumstances that Mid-States did rely on Hart's misrepresentations unless there is affirmative proof to the contrary and no such proof was or could be offered.

Whether or not Hart intended to deceive Mid-States is not only an inference or conclusion drawn from the undisputed facts by the trial court which is not binding on this Court, which may make its own determination, but is also entirely immaterial. We submit that the record is completely barren of any evidence upon which the trial court could properly make the finding that Hart's words were not fraudulently intended. In fact, as we have shown by the authorities, which are uniform in their assertion of the principles applicable to this situation, the trial court's finding that Hart did not intend to deceive or defraud is erroneous as a matter of law and is not even a permissible inference to be drawn from the facts. Contrary to the statement of American Fidelity and American Plan, the trial court's findings on this subject are completely unsupported by the record.

American Fidelity and American Plan further argue that the liquidation agreement with Lotz (Plaintiff's Exhibit 17; R. 456-460) did not give Smead full control over the agency and its finances except only insofar as they related to American Fidelity and the payment of Lotz' in-

debtedness to it. It is significant, however, that they make no denial or even any reference to the fact that by that agreement Smead, the General Manager of Lotz' agency, became the agent of American Fidelity and American Plan. At the trial, Hart admitted that Smead was their agent (R. 909). As such agent, Smead's knowledge of all of the affairs of the agency, including Lotz' insolvency, became the knowledge of American Fidelity and American Plan, and they in turn became responsible for the acts of their agent (Mid-States' Br. 47, 51-52).

American Fidelity and American Plan urge this Court to accept the rationale of the trial court in its attempt to distinguish the *Machado* case from the instant case. As pointed out in our original brief (Mid-States' Br. 54-55), the court in that case held all the defendants liable for the indebtedness owing by the debtor corporation to the plaintiff creditor *even though no fiduciary relationship existed between the parties*. In its opinion in the instant case the trial court stated that it was its view that the defendants were not aware that Lotz' creditors could not be paid and that no motive, such as close relationship to American Fidelity or dislike of Mid-States, was shown for Lotz to engage in a fraudulent plan. We submit that these conclusions are without foundation in the record. There was obviously even greater intimacy among Hart, Smead (the agent of American Fidelity and American Plan and the General Manager for Lotz) and Lotz in the instant case than between the parties in the *Machado* case, and Lotz' motive in the instant case was far greater, namely, to gain time at the expense of Mid-States in an effort to continue in business. And it would be difficult to assume any state of facts under which American Fidelity and American Plan and their agent Smead could have had greater knowledge that Mid-States could not be paid after August 22, 1951. But American Fidelity and American

Plan argue that the fraud in the *Machado* case was further evidenced by the defendant's giving the plaintiff's daughter a post-dated check without her realizing it. This, we submit, is a completely captious argument. The post-dating was obvious from the face of the check and this was, if anything, a fact favorable to the defendants in that case since the check was returned for non-payment when deposited before the post-date, and the plaintiff could have made inquiry either upon receipt or return of the check instead of merely waiting as it did until the post-date to redeposit the check. The conduct of American Fidelity and American Plan, in concert with the remaining defendants, in the instant case, goes far beyond the conduct of the recipient creditor and the other parties in the *Machado* case.

American Fidelity and American Plan state in the conclusion to their brief that Mid-States' theory of damages is radically mistaken, that even if it were entitled to recover the damages recoverable could not be more than \$65,000. No reasons are given for this conclusion and since, as we have shown, there is no dispute in the record as to the amount of Mid-States' damages, we do not deem that question an issue in this Court. In addition, we respectfully refer this Court to the authorities cited in Mid-States' original brief which uniformly hold that all who participate with an agent in a breach of his fiduciary duties or who receive the benefits thereof with knowledge that his actions are in breach of his said duties, are equally liable with him, regardless of the extent of such participation or the benefits received (Mid-States' Br. 62-64).

In passing, we advert to the statement on page 43 of the brief of American Fidelity and American Plan that the trial court did not give Mid-States judgment against Lotz for the undisputed amount owing by him to it because Mid-States sued him for fraud and not contract.

Apparently even American Fidelity and American Plan do not take this contention seriously since they make no attempt to support the statement by either argument or authorities. Mid-States has discussed the applicable authorities in its brief at pages 65-68. The record also shows that the trial court refused to enter judgment against Lotz even after timely motion by Mid-States to amend the judgment, filed pursuant to Rule 59 of the Federal Rules of Civil Procedure. Not only will this action of the trial court, if allowed to stand, result in a gross miscarriage of justice and prohibit any recovery in the future against Lotz notwithstanding his admitted indebtedness to Mid-States, but even more significant, it reflects the trial court's obvious misconception of the entire litigation which led to the erroneous judgment in favor of all the defendants.

It is again respectfully submitted that the Findings of Fact and Conclusions of Law of the trial court specified in the errors relied upon by Mid-States are clearly erroneous, that the undisputed evidence in this case establishes as a matter of law that Mid-States is entitled to judgment in its favor against all the defendants, and that this Court should reverse the judgment of the trial court and remand this cause with directions to enter judgment for \$281,746.96 in favor of Mid-States against all the defendants.

Respectfully submitted,

LEWIS SCHIMBERG,

MAYNARD GARRISON,

Attorneys for Appellant,

Mid-States Insurance Company.

WALLACE, GARRISON, NORTON & RAY,
Of Counsel.

No. 14,703

IN THE
United States Court of Appeals
For the Ninth Circuit

UNITED STATES OF AMERICA for the Benefit and on
Behalf of Harry Sherman, Chas. Robinson, Ronald
D. Wright, Stuart Scofield, Lee Lalor, William
Ames, Ernest Clements, Carl Lawrence, Gordon
Pollock and Harold Sjoberg, as Trustees of the
Laborers Health and Welfare Trust Fund for
Northern California,

Appellants,

vs.

DONALD G. CARTER, Individually; DONALD G. CARTER,
Doing Business as Carter Construction Company,
CARTER CONSTRUCTION COMPANY and HARTFORD
ACCIDENT AND INDEMNITY Co.,

Appellees.

BRIEF FOR APPELLANTS.

CHARLES P. SCULLY,

995 Market Street, San Francisco 3, California,

GARDINER JOHNSON,

THOMAS E. STANTON, JR.,

111 Sutter Street, San Francisco 4, California,

Attorneys for Appellants.

JOHNSON & STANTON,

111 Sutter Street, San Francisco 4, California,

Of Counsel.

FILED

JUL 14 1955



Subject Index

	Page
Statement of the case.....	1
The statute and bond involved.....	5
Summary of argument	6
Argument	7
A. The health and welfare contributions are a part of the compensation agreed to be paid for labor supplied in the prosecution of the government projects and they are therefore within the obligation of the payment bonds	7
B. The obligation of the payment bonds should be construed to cover claims for health and welfare contributions for the further reason that such construction will effectuate the objective of the Miller Act to protect the government against delays on its project.....	18
C. The obligation to pay liquidated damages and attorneys' fees in the event of a default is a part of the total obligation assumed by the contractor in consideration for the services supplied to him, and consequently this obligation is likewise covered by the payment bonds	20
Conclusion	24

Table of Authorities Cited

Cases	Pages
American Surety Co. of New York v. United States (5th C.C.A. 1935) 76 F. (2d) 67.....	15
Brogan v. National Surety Co. (1918) 246 U.S. 257.....	15
City of Stuart v. American Surety Co. (5th C.C.A. 1930) 38 F. (2d) 193.....	19
Commercial Standard Ins. Co. v. United States (10th C.C.A. 1954) 213 F. (2d) 106.....	14, 15
Coos Bay Lumber Company v. Local 7-116, International Woodworkers of America (CIO), 279 Pac. (2d) 508, rehearing denied 280 Pac. (2d) 412, decided January 26, 1955.....	12
Dunbar Co. v. Painters & Glaziers District Council No. 51 (D.C. D. of C. 1955) 27 CCH Labor Cases, para. 68,921, p. 88,093	20
Hill v. American Surety Co. (1906) 200 U.S. 197.....	14
In re Schmidt (1953) 24 CCH Labor Cases, para. 68,012...	16
Kritzen v. Tracy Engineering Co. (1911) 16 Cal. App. 287	17
Liebman v. United States (9th C.C.A. 1946) 153 F. (2d) 350	14
McEvoy Co. v. United States (1944) 322 U.S. 102.....	14
National Labor Relations Board v. W. W. Cross & Co. (1st C.C.A. 1949) 174 F. (2d) 875.....	9
Standard Ins. Co. v. United States (1938) 302 U.S. 422....	14, 15, 18, 19
Title Guaranty & Trust Co. v. Crane Co. (1910) 219 U.S. 24	17
United States v. Breeden (D. Alaska 1953) 110 F. Supp. 713.....	22, 23
U. S. Fidelity Co. v. Bartlett (1913) 231 U.S. 237.....	17
United States v. Henley (D. Ida. 1954) 117 F. Supp. 928..	22
United States v. Rundle (9th C.C.A. 1900) 100 Fed. 400...	17

TABLE OF AUTHORITIES CITED

iii

Rules	Pages
Federal Rules of Civil Procedure, Rule 17(a).....	16

Statutes	
California Government Code, Section 4200.....	10, 17
Labor Management Relations Act of 1947 (U.S.C. 29:186), Section 302	8
Miller Act (U.S.C. 40:270a).....	1, 4, 5
Miller Act (U.S.C. 40:270b)	5

Miscellaneous	
Frankel, The Health and Welfare Trust: Damages for Failure to Contribute (1954), 5 CCH Labor Law Journal 28	21
Interim Report, 84th Congress, 1st Session, Welfare and Pension Plan Investigation, pages 3, 5.....	24
Senate Report 105, 80th Congress, page 52 (reported at CCH Labor Law Service, paragraph 4830.25).....	8



No. 14,703

IN THE

United States Court of Appeals For the Ninth Circuit

UNITED STATES OF AMERICA for the Benefit and on
Behalf of Harry Sherman, Chas. Robinson, Ronald
D. Wright, Stuart Scofield, Lee Lalor, William
Ames, Ernest Clements, Carl Lawrence, Gordon
Pollock and Harold Sjoberg, as Trustees of the
Laborers Health and Welfare Trust Fund for
Northern California,

Appellants,

vs.

DONALD G. CARTER, Individually; DONALD G. CARTER,
Doing Business as Carter Construction Company,
CARTER CONSTRUCTION COMPANY and HARTFORD
ACCIDENT AND INDEMNITY Co.,

Appellees.

BRIEF FOR APPELLANTS.

STATEMENT OF THE CASE.

This is an appeal from a summary judgment granted to the appellee Hartford Accident and Indemnity Company in a suit brought by the appellants under the Miller Act (U.S.C. 40: 270a) to recover health and welfare contributions from Carter Construction Company and the surety on its bond.

Appellants constitute the Board of Trustees of the Laborers Health and Welfare Trust Fund for

Northern California (hereinafter referred to as the "Fund") which was established by collective bargaining for the benefit of laborers employed on construction projects in the 46 Northern counties of California.

The collective bargaining agreements which provided for the establishment of the Fund were negotiated by two Chapters of The Associated General Contractors of America, Inc., on behalf of the contractor employers, and the Northern California District Council of Hod Carriers, Building and Construction Laborers of the International Hod Carriers, Building and Common Laborers' Union of America, on behalf of the employees (Admissions, Exh. C, Tr. 21). The agreements were so-called "Master Labor Agreements" which provided the wage rates and many other terms and conditions governing the employment of construction laborers in the Northern California area. On the subject of health and welfare, the agreements provided that commencing on February 1, 1953, each individual employer covered by the agreements would contribute the sum of seven and one-half cents per hour for each hour worked by employees under the agreements to the Fund (Amended Complaint, par. X, Tr. 7-8).

The Fund itself was established by a Master Trust Agreement dated March 4, 1953, which was negotiated pursuant to the Master Labor Agreements by the parties to those agreements (Admissions, Exh. C, Tr. 21). The Trust Agreement provides that the Board of Trustees of the Fund shall have the power to de-

mand and enforce the prompt payment of the contributions agreed to be paid to the Fund (Art. IV, Sec. 3). It likewise provides that the Board shall promptly use the monies available in the Fund to provide the benefits specified in the Health and Welfare Plan (Art. IV, Sec. 4). Pursuant to this directive, the Board has procured insurance policies which have provided substantial benefits for construction laborers and their families, in the form of life insurance, accidental death and dismemberment benefits, hospital expense benefits, surgical expense benefits, X-Ray and laboratory expense benefits, and supplemental accident expense benefits.

The Trust Agreement provides that no employee or other beneficiary shall have any right or claim to benefits under the Health and Welfare Plan except as provided in the insurance policies procured by the Board of Trustees (Art. VIII, Sec. 2). The agreement also provides that contributions to the Fund shall not "constitute or be deemed to be wages due to the employees *with respect to whose work such payments are made*"* and that no employee shall be entitled to receive any part of the contributions made to the Fund in lieu of the benefits provided by the Health and Welfare Plan (Art. II, Sec. 3). In the actual operation of the Health and Welfare Plan, an employee is required to work at least 400 hours in a designated six-month period for one or more contributing employers in order to acquire eligibility

*Emphasis is added throughout this brief unless otherwise noted.

for insurance coverage under the Plan for the succeeding six-month period. Thus, each hour of work under one of the Master Labor Agreements requires the individual employer to pay seven and one-half cents into the Fund, which results in a credit for the employee toward eligibility to receive the substantial benefits provided by the Fund for him and his dependents.

The defendant Carter Construction Company was represented in collective bargaining by the Associated Home Builders of Sacramento, which was one of the contractor associations signatory to the Master Labor Agreements and to the Master Trust Agreement (Admissions, Exh. C, p. 21, Tr. 21). The Company employed construction laborers on two construction projects for the United States Government, and thereafter defaulted in contributions due to the Fund for the months of February, March and April, 1953. Under the terms of the Master Trust Agreement, this default subjected the Company to an additional liability to the Fund for liquidated damages in the amount of \$20 for each monthly delinquency and for reasonable attorneys' fees, court costs and other reasonable expenses incurred by the Board of Trustees in connection with the collection of the delinquent payments (Admissions, Exh. C, Art. II, Sec. 8, and Art. IV, Sec. 3, Tr. 21).

As required by the Miller Act (U.S.C. 40: 270a), the Carter Construction Company provided a payment bond with respect to each of the Government projects. The present action is brought by the appellants

against the Carter Construction Company and against appellee Hartford Accident and Indemnity Co., the surety on its bond, to recover the delinquent health and welfare contributions, liquidated damages and attorneys' fees.

THE STATUTE AND BOND INVOLVED.

Section 270a of Title 40 of the United States Code, commonly known as the Miller Act, requires that before any contract exceeding \$2,000 for the construction of a public work of the United States is awarded to any person, such person must furnish to the United States a payment bond “. . . for the protection of all persons supplying labor and material in the prosecution of the work provided for in said contract for the use of each such person.” Section 270b of Title 40 of the United States Code provides that every person who has furnished labor or material in the prosecution of the work provided for in such contract “. . . and who has not been paid *in full* therefor” shall have the right to sue on such payment bond for the amount unpaid at the time of the institution of such suit for the sum or sums due him.

The payment bond provided by appellees pursuant to the Act in connection with each project (Admissions, Exh. B, Tr. 19), stipulates that:

“Now, Therefore, if the principal shall promptly make payments to all persons supplying labor and material in the prosecution of the work provided for in said contract, . . . then this

obligation to be void; otherwise to remain in full force and virtue.”

SUMMARY OF ARGUMENT.

The provisions of the Miller Act are to be liberally construed to effectuate the purposes of the Act, namely, (1) to protect laborers and materialmen who furnish services and supplies in the prosecution of Government projects, and (2) to protect the Government from loss as the result of delays caused by steps which laborers and suppliers might reasonably be expected to take to protect themselves in the absence of the security provided by a payment bond.

The claims in litigation come within both the intent and the letter of the Act.

Appellee surety conceded before the District Court that health and welfare contributions constitute a part of the compensation agreed to be paid by the contractor for the services of the laborers on the construction projects, although it denied that the contributions could be called a part of the “wages” of the men. The obligation of the bond is to pay the laborers “in full” for their services, and not merely their hourly wages. The obligation, fairly construed, includes every form of compensation agreed to be paid for services, and specifically it includes health and welfare contributions. The appellants are suing to enforce this obligation in the right of the laborers and for their benefit.

The claims should also be held covered by the bond in order to achieve the second main objective of the Miller Act, namely, to protect the Government against delays. The obligation to make health and welfare contributions is a part of the Master Labor Agreements under which all major construction projects in the Northern California area are manned. If an individual contractor defaults in his contributions he breaches the applicable Labor Agreement, and subjects himself to the probability of strike action by the Union. The use of this enforcement device by the Union could seriously disrupt and delay projects being performed by the contractor, including Government projects.

The obligation to pay liquidated damages and attorneys' fees in the event of a default is a part of the total obligation assumed by the contractor in consideration for the services supplied to him, and consequently this obligation is likewise covered by the payment bonds.

ARGUMENT.

- A. THE HEALTH AND WELFARE CONTRIBUTIONS ARE A PART OF THE COMPENSATION AGREED TO BE PAID FOR LABOR SUPPLIED IN THE PROSECUTION OF THE GOVERNMENT PROJECTS AND THEY ARE THEREFORE WITHIN THE OBLIGATION OF THE PAYMENT BONDS.**

There can be no serious dispute as to the fact that the health and welfare contributions required of the defendant contractor are a part of the compensation

which the contractor agreed to pay for the labor of the men who worked on its projects.

It was the general recognition of this fact which led Congress to enact Section 302 of the Labor Management Relations Act of 1947 (U.S.C. 29: 186), which imposed strict limitations and regulations upon the administration of health and welfare funds for the protection of the individual laborer. The Fund was established in compliance with the requirements of this Act.

The Congressional policy which led to enactment of Section 302 was stated in Senate Report 105, 80th Cong., p. 52 (reported at CCH Labor Law Service, par. 4830.25) as follows:

“An amendment reinserting in the bill a provision regarding so-called welfare funds similar to the section in the Case bill approved by the Senate at the last session [is proposed]. It does not prohibit welfare funds but merely requires that, if agreed upon, such funds be jointly administered—be, in fact, trust funds for the employees, with definite benefits specified, to which employees are clearly entitled, and to obtain which they have a clear legal remedy. The amendment proceeds on the theory that union leaders should not be permitted, without reference to the employees, to divert funds paid by the company, in consideration of the services of employees, to the union treasury or the union officers, except under the process of strict accountability.”

In its Memorandum of Points and Authorities in Support of Motion for Summary Judgment filed

before the District Court, appellee surety conceded that the health and welfare contributions and the benefits to the laborers flowing from such contributions were "compensation paid to an employee in furtherance of 'working conditions' insuring to the benefit of both employer and employee," but it claimed that such contributions are not covered by its bonds since they do not "fall within the classification of 'rate of pay' ". It is not essential to a recovery in this action, however, for the appellants to establish that the health and welfare contributions are a part of the "rate of pay" or the "wages" of the laborers involved.

There is respectable authority for the conclusion that health and welfare contributions are a part of "wages" for some purposes. For example, in *National Labor Relations Board v. W. W. Cross & Co.* (1st C.C.A. 1949) 174 F. (2d) 875, the court held that such contributions are a part of "wages" within the meaning of that term as used in the National Labor Relations Act. In this litigation, however **all that needs to be shown is that such contributions are a part of the agreed compensation for labor, since if they are and if they have not been paid, the contractor has not paid "in full" for the labor supplied to its projects.**

Clearly, until the required health and welfare contributions have been made with respect to the work of a laborer, the laborer has not been compensated "in full" for his services. He has been denied a credit toward substantial benefits which he has earned by his labor, and which Congress has been careful to pre-

serve for him through other legislation (see *supra*, p. 8).

In *Sherman v. Achterman*, decided on May 18, 1955 by the Appellate Department of the California Superior Court sitting in San Francisco, the court held that appellants in this proceeding, who were also plaintiffs in that case, were entitled to recover against the surety on a labor and material bond required on public work projects by Section 4200 of the California Government Code.* In analyzing the nature of health and welfare contributions, the court said (App. pp. ii-iv):

“The trial judge sets forth the test upon which the decision was made, as follows: ‘If the payments are part of wages due the laborers, the sums are within the provisions of the bond. If they are not such payments, no cause of action is stated.’

However, the statute does not refer to wages, but requires that the bond provide that the surety will pay, when the contractor fails ‘to pay for any materials, provisions, provender or other supplies, or teams used in, upon, for or about the performance of the work contracted to be done, *or for any work or labor thereon of any kind*’

There may be, and these days there often are, payments for work or labor which are not wages. Measured by the test of ‘wages’ plaintiff would have some difficulty at once, because the Trust

*Since this decision, directly in point, has not as yet been officially reported, it is reproduced in full in the appendix to this brief.

Agreement expressly provides that the contribution to the Fund shall not 'constitute or be deemed to be wages due to the employees with respect to whose work such payments are made.' Whether this clause would prevent plaintiffs from showing that, in a broad sense, the payments are 'wages,' we need not decide. **They are payments for labor.**

We believe that the statute, and, therefore, the bonds (which under well known provisions of the law of suretyship, must be coequal with the requirements of the statute (*Los Angeles Stone Co. v. National Surety Co.*, 178 Cal. 247)) cover the payments required under the Trust Agreement.

Viewed from the standpoint of the employer, what else are these but payments for the performance of work? Why, except to purchase labor, did the employer agree to make the payments? Viewed from the employees' aspect, the payments must be regarded as payments for labor, too. The employees had a vital interest in having these payments made, because to the extent there was failure, the Fund would be diminished.

The Fund is not something which can be made up from other sources, including stockholders' equities in capital and surplus, such as are the resources of privately owned insurance carriers, which may supply workmen's compensation insurance. **It is a pool created by collective bargaining, and it has the character of a reward for labor.** If the employer were to announce, at the commencement of a public job, that he would not make the payments called for by the collective bargaining agreement, no doubt the labor unions

would not supply workers, and they would be perfectly within their rights. **A payment 'for labor' would have been defaulted.**

It does not seem important to us that the *benefits* from the Fund were not allocable to the particular job; the payments *into* the Fund were so allocable, and the default reduced the Fund *pro tanto*.''*

The court in the *Achterman* case cited a recent decision of the Oregon Supreme Court, *Coos Bay Lumber Company v. Local 7-116, International Woodworkers of America (CIO)*, 279 Pac. (2d) 508, rehearing denied 280 Pac. (2d) 412, decided January 26, 1955, wherein the nature of both employer-paid contributions (of the type here involved) and employee-paid contributions was analyzed in the following terms (279 Pac. (2d) 512):

"Although in the cases just reviewed no distinction arose between employer-paid and employee-paid insurance programs, the Potlatch and Inland Steel decisions plainly decided that the term 'wages' as used in the Labor Management Relations Act embraces what, for convenience, may be referred to as employer-paid plans. Since such plans are mandatory subjects for collective bargaining, a union has authority to obtain a wage increase for its members in the form of an employer-paid insurance plan. It follows, therefore, that it also has the power to obtain a wage increase to be applied for the purchase of insur-

*Emphasis in italics is by the court.

ance as the union directs. Both situations involve substantially the same thing: a wage increase which takes the form of group insurance. As compared with the situation where a collective bargaining agreement provides for a so-called employer-paid plan, a contract between an employer and a union, such as the one before us, only indicates more specifically what such a group insurance plan really is when it provides that it is to be financed by a wage increase. Therefore, the distinction between employer-paid and employee-paid plans is at best one of form, not of substance, and the rights of the parties are the same in the two situations. *International Woodworkers of America, Local 6-64, C.I.O. v. McCloud River Lumber Co., D.C., 119 F. Supp. 475, 486*, in interpreting the provisions of a health and welfare insurance program substantially the same as the one before us, said:

‘To this Court, the difference between “a wage increase intended as the method of financing the health and welfare plan” and “a wage increase to pay for a Health and Welfare Program for the employees” seems like the difference between tweedledum and tweedledee!’ ”

While the court in the *Achterman* case undertook to distinguish the pertinent provisions of the California Government Code from those of the Miller Act (App. pp. viii-x), clearly the primary purpose of both statutes is to protect laborers and suppliers against any loss. Insofar as the Miller Act is concerned, this purpose has been repeatedly stated by the United States Supreme Court, which has emphasized that the

Act must be liberally construed to effectuate such purpose.

McEvoy Co. v. United States (1944) 322 U.S. 102, 105;

Standard Ins. Co. v. United States (1938) 302 U.S. 422, 444;

Commercial Standard Ins. Co. v. United States (10th C.C.A. 1954) 213 F. (2d) 106, wherein the principal decisions of the Supreme Court on this point are cited and digested.

In *Hill v. American Surety Co.* (1906) 200 U.S. 197, the court said (p. 203):

“But we must not overlook, in construing this obligation, the manifest purpose of the statute to require that material and labor actually contributed to the construction of the public building shall be paid for and to provide a security to that end.

Statutes are not to be so literally construed as to defeat the purpose of the legislature. ‘A thing which is within the intention of the makers of the statute, is as much within the statute, as if it were within the letter.’ *United States v. Freeman*, 3 How. 556. ‘The spirit as well as the letter of a statute must be respected, and where the whole context of a law demonstrates a particular intent in the legislature to effect a certain object, some degree of implication may be called in to aid that intent.’ Chief Justice Marshall in *Durousseau v. United States*, 6 Cranch, 307.”

In *Liebman v. United States* (9th C.C.A. 1946) 153 F. (2d) 350, this Court said (p. 352):

“The purpose of the Miller act is to protect those who furnish materials or labor or both for public buildings and to insure the payment **in full** for such materials and labor.”

In keeping with this rule of liberal construction the courts have held that a claim by a railroad for unpaid freight charges due for transportation of materials to a building was one for “labor and materials” within the meaning of the Act (*Standard Ins. Co. v. United States* (1938) 302 U.S. 442, *supra*); that groceries and provisions supplied to a contractor for the boarding of his workmen constituted “supplies furnished in the prosecution of the work” within the meaning of the Act (*Brogan v. National Surety Co.* (1918) 246 U.S. 257); that material which was furnished to a contractor and which was not actually used in performance of a contract, but which replaced identical material taken from the contractor’s inventory and used on the contract job, also constituted “supplies furnished in the prosecution of the work” (*Commercial Standard Ins. Co. v. United States* (10th C.C.A. 1954) 213 F. (2d) 106, *supra*); and that services in inspecting and testing gravel constituted “labor” within the meaning of the Act (*American Surety Co. of New York v. United States* (5th C.C.A. 1935) 76 F. (2d) 67).

The distinction drawn by the court in the *Achterman* case between the provisions of the Miller Act and the provisions of the California Government Code is that the Miller Act refers to the *person* who may collect on the bond, whereas the California statute

refers to the *subject matter* of the payments secured by the bond (App. p. ix). This distinction, however, cannot justify a difference in treatment of health and welfare contributions under the two statutes, particularly in view of the Supreme Court's directive that the spirit as well as the letter of the Federal Act be respected.

Appellants are trustees for the men who performed the labor involved. They are given specific authority by the trust instrument to enforce the prompt payment of the health and welfare contributions due with respect to such labor (Admissions, Exh. C, Art. IV, sec. 3, Tr. 21), and the employee beneficiaries of the trust are expressly excluded from any conflicting right or claim to the contributions (Art. II, sec. 4). Appellants are authorized by court rule to bring this action in the name of the United States, for their own use and benefit and without joining with them the beneficiaries of the trust (Rule 17(a), Federal Rules of Civil Procedure), and counsel for appellees stated before the District Court that "we are not making any issue here as to their [appellants'] right to bring this action. . . . We are not interested in raising any question of right to sue, capacity or any such matters" (Tr. 33). Hence, appellants stand in the shoes of the men who furnished the labor as completely and effectively as an assignee (see *In re Schmidt* (1953) 24 CCH Labor Cases, para. 68,012), and the courts have expressly held that the provisions of the Miller Act are not so personal as to preclude

suit by assignees of the persons who furnished the labor.

Title Guaranty & Trust Co. v. Crane Co.
(1910) 219 U. S. 24, 35;

U. S. Fidelity Co. v. Bartlett (1913) 231 U. S.
237;

United States v. Rundle (9th C.C.A. 1900) 100
Fed. 400, 403.

The District Court assumed, without any authority, that appellants would not have any claim for the contributions under the state mechanics' lien laws (Tr. 45-47), and then denied appellants relief in this action on the theory that the purpose of the Miller Act was "to protect those supplying labor and materials on government jobs substantially in the same way as they are protected under state mechanics' lien laws" (Tr. 25). The California courts have held that a mechanics' lien can be asserted for items of compensation other than periodic wages (see *Kritzen v. Tracy Engineering Co.* (1911) 16 Cal. App. 287, holding that a mechanics' lien for labor could include a sum due as reimbursement for traveling expenses), and no case has held that the trustees of a welfare fund cannot claim a mechanics' lien for delinquent health and welfare contributions. If arguments are to be drawn from analogies to the state law, however, it is obvious that the California statute requiring payment bonds on state and other public projects (Government Code, sections 4200 *et seq.*) furnishes a closer analogy to the Miller Act than the mechanics'

lien law. And under this statute, as we have shown (*supra*, p. 10), health and welfare contributions are recoverable against the surety.

For the foregoing reasons, we respectfully submit that the payment bonds which were furnished by appellee surety should be construed as securing the payment of the health and welfare contributions demanded in this action.

B. THE OBLIGATION OF THE PAYMENT BONDS SHOULD BE CONSTRUED TO COVER CLAIMS FOR HEALTH AND WELFARE CONTRIBUTIONS FOR THE FURTHER REASON THAT SUCH CONSTRUCTION WILL EFFECTUATE THE OBJECTIVE OF THE MILLER ACT TO PROTECT THE GOVERNMENT AGAINST DELAYS ON ITS PROJECT.

In *Standard Ins. Co. v. United States* (1938) 302 U.S. 442, in holding that freight charges of a railroad constitute "labor" within the meaning of a payment bond, the Supreme Court said (pp. 443-445):

"Petitioner maintains that freight cannot be considered as 'labor or material' without doing violence to the words of the statute; also that Congress did not intend to extend further protection to carriers who could enforce their lien for charges by retaining and selling the materials.

Stuart for use of Florida East Coast Ry. Co. v. American Surety Co., Circuit Court of Appeals Fifth Circuit (1930) *supra*, carefully considered and denied these defenses and stated reasons therefor which we deem adequate. This was followed by the court below in the present cause.

* * * * *

Nor do we find reason for excluding the carrier from the benefit of the bond because it might have enforced payment by withholding delivery. The words of the enactment are broad enough to include a carrier with a lien. Nothing in its purpose requires exclusion of a railroad. **Refusal by the carrier to deliver material until all charges are paid might seriously impede the progress of public works, possibly frustrate an important undertaking.**"

In *City of Stuart v. American Surety Co.* (5th C.C.A. 1930) 38 F. (2d) 193, to which the Supreme Court had referred with approval in the *Standard Ins. Co.* case, the court said (p. 195):

"In addition to protecting the honest claims of persons who have contributed to the performance of the job, the legislative intent no doubt was also **to minimize impediment and delay of the work, and facilitate procurement of labor and materials, through the security afforded by the bond.** If the carrier is included in its benefits, this intent will be served. If he is not included, he must hold the freight until payment is made, and sell it for charges if it is not, to the embarrassment of the work."

The reasoning of the court in the *Standard Ins. Co.* case applies with peculiar force to claims for health and welfare contributions. As we have pointed out, the obligation to make these contributions is imposed by the Master Labor Agreements with the Northern California District Council of the Laborers Union. Every major construction project in Northern Cali-

fornia is manned under the terms and conditions of these agreements, and the right of the individual contractor to procure laborers for his projects is dependent upon adherence to and compliance with these Master Agreements. A failure to pay health and welfare contributions is a breach of the Master Agreements (*Sherman v. Achterman*, App. p. iv; *Dunbar Co. v. Painters & Glaziers District Council No. 51* (D.C. D. of C. 1955) 27 CCH Labor Cases, para. 68,921, p. 88,093), and the Laborers Union has asserted the right to withdraw and withhold laborers from contractors who are thus in default. The individual contractor has no practical remedy for such enforcement action, and the taking of the action could seriously delay or even terminate his performance of a Government contract. For this reason, just as in the freight cases, a holding that health and welfare contributions are covered by the security of the bond is important to the protection of the Government as well as of the individual laborer.

C. THE OBLIGATION TO PAY LIQUIDATED DAMAGES AND ATTORNEYS' FEES IN THE EVENT OF A DEFAULT IS A PART OF THE TOTAL OBLIGATION ASSUMED BY THE CONTRACTOR IN CONSIDERATION FOR THE SERVICES SUPPLIED TO HIM, AND CONSEQUENTLY THIS OBLIGATION IS LIKEWISE COVERED BY THE PAYMENT BONDS.

At the time the Health and Welfare Plan was negotiated with the Laborers Union, the contractors were concerned about the uncertain liabilities which might be involved in an agreement to make contribu-

tions to a fund to provide insurance for their employees. Specifically, they were concerned with a claim made by the Union that a delinquent employer could be held liable for the full amount of any insurance benefits lost through such delinquency (see *Frankel, The Health and Welfare Trust: Damages for Failure to Contribute* (1954) 5 CCH Labor Law Journ. 28). Various provisions protecting against any such uncertain liability were negotiated as a part of the Master Trust Agreement, including the following provision of Section 8 of Article II (Admissions, Exh. C, Tr. 21):

“... The parties recognize and acknowledge that the regular and prompt payment of employer contributions to the Fund is essential to the maintenance in effect of the Health and Welfare Plan, and that it would be extremely difficult, if not impracticable to fix the actual expense and damage to the Fund and to the Health and Welfare Plan which would result from the failure of an individual employer to pay such monthly contributions in full within the time above provided. Therefore, the amount of damage to the Fund and Health and Welfare Plan resulting from any such failure shall be presumed to be the sum of \$20 per delinquency or 10% of the amount of the contribution or contributions due, whichever is greater, which amount shall become due and payable to the Fund as liquidated damages and not as a penalty, in San Francisco, California, upon the day immediately following the date on which the contribution or contributions become delinquent and shall be in addition to said delinquent contribution or contributions.”

The parties likewise provided in Section 3 of the Article IV of the Trust Agreement (Tr. 21) as follows:

“The Board of Trustees shall have the power to demand and enforce the prompt payment of contributions to the Fund, and the payments due to delinquencies as provided in Section 8 of Article II. If any individual employer defaults in the making of such contributions or payments and if the Board consults legal counsel with respect thereto, or files any suit or claim with respect thereto, there shall be added to the obligation of the employer who is in default, reasonable attorneys’ fees, court costs and all other reasonable expenses incurred by the Board in connection with such suit or claim.”

Under these provisions the obligation to pay liquidated damages and reasonable attorneys’ fees in the event of default is an integral part of the total obligation of the defendant contractor to make health and welfare contributions with respect to the services of laborers working on its Government projects. Liquidated damages and attorneys’ fees were a part of the agreed payment for labor which was held to be recoverable against the surety in *Sherman v. Achterman*, and as a part of such agreed payment, they should also be recoverable against the surety under a Miller Act bond.

United States v. Breeden (D. Alaska (1953))
110 F. Supp. 713;

United States v. Henley (D. Ida. 1954) 117 F.
Supp. 928.

In *United States v. Breeden, supra*, the court said with respect to attorneys' fees (p. 715):

"We must first consider the precise language of the Miller Act in this respect, which is that the payment bond is given 'for the protection of all persons supplying labor and material in the prosecution of the work provided for in said contract for the use of each such person.' No specific limitation has been found in this act or any other Federal law which forbids the allowance of attorneys' fees as part of costs for the persons who are obliged to bring suit on surety company's bonds. The text of the law would indicate it must have been the purpose of Congress to protect **all persons** supplying labor and material in the prosecution of work upon such contracts. Surely, the Congress cannot have contemplated that the persons supplying such labor and material should be obliged, in the event of the default of the contractors, to pay to their own attorneys without recompense a substantial portion of the amounts actually due them for the labor and materials supplied to the contractors. Such a rule would penalize the suppliers to the advantage of the sureties on the contractors' bonds. **The protection demanded by the law is full protection to the suppliers and not partial protection, as would be the case if the attorneys' fees of the suppliers who are obliged to bring suit, could not be taxed as a part of the costs.**"

CONCLUSION.

This case, and the *Achterman* case in the State court, are of first impression not only in California and this Circuit but throughout the Nation. As such, their importance transcends the relatively small monetary amounts in litigation. They present one aspect of the problem of making the manifest benefits of low-cost group health insurance available to the men who perform the casual employment which characterizes the building and construction industry.

The widespread utilization of group health insurance is a modern development but the social desirability and need for such insurance is attested by the rapidity of its growth.

In January, 1954, the Subcommittee on Welfare and Pension Funds reported to the Senate Committee on Labor and Public Welfare as follows (Interim Report, 84th Cong., 1st Sess., entitled "Welfare and Pension Plan Investigation," pp. 3, 5):

"Employee welfare and pension plans have developed to the point where they now constitute a significant and important factor in our national economy . . . Today, welfare and pension plans are part and parcel of the entire fabric of wages and working conditions in an employee's 'contract of employment' . . .

* * * * *

No exact information is available concerning the total employee coverage under benefit plans which are collectively bargained. The best available information indicates, however, that as of mid-1954 at least 11,290,000 workers were cov-

ered by collectively bargained welfare and pension plans. This represents an increase of more than 47 percent in the worker coverage under collectively bargained group-benefit plans since mid-1950."

A large industry-wide health and welfare plan, such as the one administered by appellants for the construction laborers in Northern California, provides the most economical and effective means of making health insurance benefits available to building tradesmen. Under such a plan many small contractors and builders, by contributing a fixed amount per hour of work to a central trust fund, can provide benefits for their employees far in excess of those which they could purchase for the same money as individual employers. Conversely, under the plan building tradesmen who are required by the nature of their employment to shift continually from one employer to another can pool their credits with the central fund so as to secure continuous insurance coverage without regard to the number of employers for whom they work or the period of their employment with any single employer. The central trust fund, administered by trustees who are chosen representatives of employers and employees in the industry, provides an essential focal point, to which the contributions of thousands of employers can be directed, which can purchase insurance coverage at a minimum cost from a single carrier and which can receive and pay promptly the claims originating from the thousands of employees and dependents who are covered by the health and welfare plan.

Using appellants' Fund by way of illustration, during the fiscal year of the Fund which ended May 31, 1955, over 3300 individual employers contributed a total of \$2,290,774 to the Fund. The Fund during that year provided over 15,000 construction laborers with insurance coverage for themselves and their dependents consisting of \$2000 life insurance on the employee, plus accidental death and dismemberment insurance in the amount of an additional \$2000; life insurance on dependents ranging from \$100 to \$1000 depending upon age; and hospital and surgical benefits for the non-occupational injury or illness of the employee and his dependents, consisting of full reimbursement for the cost of ward service in a hospital for a maximum of 70 days, reimbursement for special hospital charges in full up to \$400 plus 75% of charges over \$400, surgical expense benefits under a \$300 surgical schedule, reimbursement for doctor's home, office and in-hospital calls, X-ray and laboratory expense reimbursement up to \$50 and supplemental accident expense payments up to \$300.

The court will at once appreciate the tremendous social value which is attached to benefits of this sort. Men who, in the past, would have become public charges when misfortune struck are now being provided with complete hospital, medical and surgical care out of funds created through their own toil and sweat. They receive needed care and attention without the stigma of public charity and without drain on the taxpayer. Because they know that the cost will not come out of their meager savings, if any, they are

encouraged to seek medical and hospital attention at an early stage of an illness or for an injury which, if unattended, could have serious consequences. In addition, hospitals and doctors have assurance that their bills will be paid promptly, thereby creating important savings in the over-all cost of hospital, surgical and medical care.

In order to make health and welfare funds feasible for the building and construction industry, it has been necessary (1) to provide that contributions be made directly to the funds by the employers rather than by the employees; (2) to look to the unions rather than to the individual employees for the necessary authorizations; (3) to provide that the individual employees shall have no interest in the contributions as distinguished from the benefits to be provided by the funds; and (4) to require that individual employees meet minimum work requirements in order to enjoy the benefit of the funds. In the absence of these provisions, the funds would be faced with insurmountable problems of collection, endless litigation concerning the rights of employees who did not qualify for coverage and the insoluble problem of providing substantial benefits for men who did not earn sufficient contributions to pay for such benefits.

We submit that these necessary peculiarities of health and welfare funds in the building and construction industry should not be used as makeweight arguments to stultify and emasculate the clear obligation of the appellee surety to pay *in full* for all work or labor performed on the bonded projects. Both reason

and equity demand that health and welfare contributions be held to be within the coverage of the bonds in suit.

As the court pointed out in the *Achterman* case, the health and welfare contributions which the individual contractors have agreed to pay as partial consideration for the services of the construction laborers are the life blood of the Fund. If these contributions were not paid, the Fund would quickly disappear and the substantial benefits described above would end. While the failure of a single contractor to make his contributions would have slight effect upon the Fund, an accumulation of such failures would threaten its destruction, and would most certainly deprive those men who worked for the delinquent contractors of the insurance coverage which they had earned by their labor.

We respectfully submit that, in the light of the foregoing, no stretching or "extending" of the letter of the Miller Act is required to hold that appellants, and the laborers for whom they are trustees, are entitled to the security of appellee's bond. Contrary to the conclusion of the District Court (Tr. 26), the contributions sought to be recovered are directly related to work performed on the defendant contractor's government projects. They came due solely because such work was furnished and their amount is measured exactly by the number of hours of work performed. Certainly it was the intent of Congress to protect the laborer as to every element of his compensation and the novelty of the health and welfare

element should not preclude a holding that such element is just as much within the protection of the bond as the laborer's hourly wage.

For the foregoing reasons, the judgment of the District Court should be reversed and this court should direct that a summary judgment be entered in favor of appellants.

Dated, July 5, 1955.

CHARLES P. SCULLY,
GARDINER JOHNSON,
THOMAS E. STANTON, JR.,
Attorneys for Appellants.

JOHNSON & STANTON,
Of Counsel.

(Appendix Follows.)



Appendix.

Appendix

FILED

MAY 18, 1955

MARTIN MONGAN, Clerk

By J. F. Witman

Deputy Clerk

In the Superior Court of the State of California,
in and for the City and County of San Francisco

APPELLATE DEPARTMENT

Harry Sherman, et al.,
Plaintiffs and Appellants,
vs.

Leonard Achterman, et al.,
Defendants and Respondents.

Appeal No. 2368

J. F. Cambiano, et al.,
Plaintiffs and Appellants,
vs.

Leonard Achterman, et al.,
Defendants and Respondents.

Appeal No. 2370

MEMORANDUM OPINION

These appeals present a question new to the courts of this state. The facts are undisputed, the appeals being based on judgments upon orders sustaining de-

murrers without leave to amend, and are set forth in the next paragraph as they have been copied from the opinion of the learned judge who rendered the judgments.

This is an action against a firm of contractors and the insurance company furnishing the construction bond, for alleged default in payment of wages due laborers.

The complaint, by appropriate allegations, sets forth the execution, by the contractors, of two building contracts. The complaint further recites that a written Trust Agreement was entered into between the contractors, as members of an Employers' Association, and the Union representing certain employees on the job in question, whereby the contractors would contribute and pay into a Health and Welfare Fund, established by said above-mentioned contract, the sum of 7½ cents per hour for each hour worked by laborers in its employ on said jobs.

The contractor defaulted in making the required payments into the Fund for workmen on the two jobs bonded, and plaintiffs, as Trustees of the Health and Welfare Fund above mentioned, seek recovery on the bond. By general demurrer, the defendant insurance company questions the sufficiency of facts to constitute a cause of action, and also the legal capacity of the plaintiffs to sue.

The trial judge sets forth the test upon which the decision was made, as follows: "If the payments are part of wages due the laborers, the sums are within

the provisions of the bond. If they are not such payments, no cause of action is stated."

However, the statute does not refer to wages, but requires that the bond provide that the surety will pay, when the contractor fails "to pay for any materials, provisions, provender or other supplies, or teams used in, upon, for or about the performance of the work contracted to be done, *or for any work or labor thereon of any kind. . . .*"

There may be, and these days there often are, payments for work or labor which are not wages. Measured by the test of "wages" plaintiff would have some difficulty at once, because the Trust Agreement expressly provides that the contribution to the Fund shall not "constitute or be deemed to be wages due to the employees with respect to whose work such payments are made." Whether this clause would prevent plaintiffs from showing that, in a broad sense, the payments are "wages", we need not decide. They are payments for labor.

We believe that the statute, and, therefore, the bonds (which, under well known provisions of the law of suretyship, must be coequal with the requirements of the statute (*Los Angeles Stone Co. v. National Surety Co.*, 178 Cal. 247)) cover the payments required under the Trust Agreement.

Viewed from the standpoint of the employer, what else are these but payments for the performance of work? Why, except to purchase labor, did the employer agree to make the payments? Viewed from

the employees' aspect, the payments must be regarded as payments for labor, too. The employees had a vital interest in having these payments made, because to the extent there was failure, the Fund would be diminished.

The Fund is not something which can be made up from other sources, including stockholders' equities in capital and surplus, such as are the resources of privately owned insurance carriers, which may supply workmen's compensation insurance. It is a pool created by collective bargaining, and it has the character of a reward for labor. If the employer were to announce, at the commencement of a public job, that he would not make the payments called for by the collective bargaining agreement, no doubt the labor unions would not supply workers, and they would be perfectly within their rights. A payment "for labor" would have been defaulted.

It does not seem important to us that the *benefits* from the Fund were not allocable to the particular job; the payments *into* the Fund were so allocable, and the default reduced the Fund *pro tanto*.

Finally, from the standpoint of the public interest, these payments would seem to be "for labor". As appellant points out, the union could strike when these payments were not made, thus delaying public improvements. This is not by any means, as respondent intimates in its brief (p. 2) a "threat of labor delays and strikes if this Court's decision is not in favor of appellant." It is simply a statement that if an em-

ployer fails to pay what admittedly he should pay, and his surety does not have to make up his principal's deficiency, there could be a strike (though there was none in this case), and that the public has an interest in preventing such interruption of public work, brought about by the employer's default.

Since the judgment by the trial court, the Supreme Court of Oregon has decided a case which considers the nature of agreements for group insurance of employees. The case is that of *Coos Bay Lumber Company v. Local 7-116, International Woodworkers of America*, 279 Pac.2d 508; 60 Ore. Adv. Sheets 67. The Court there held that a group insurance program is primarily for the benefit of the members of the union, and is the subject of collective bargaining as covered by the National Labor Relations Act, and that individual employees who do not wish to participate must, nevertheless, be subject to the agreement made by their union. Thus, the subject has been taken away from the employees, individually. The Court held that there is no real difference between an "employee-paid" plan where the 7½c is actually deducted from the worker's wage, and an "employer-paid" plan where the amount agreed upon in the collective bargaining agreement is paid directly by the employer to the trustees. The court says (60 Ore. Adv. Sheets, at p. 76):

"Since such plans are mandatory subjects for collective bargaining, a union has authority to obtain a wage increase for its members in the form of an employer-paid insurance plan. It fol-

lows, therefore, that it also has the power to obtain a wage increase to be applied for the purchase of insurance as the union directs.”

We are aware that in the *Coos Bay* case the 7½¢ was referred to as a wage increase, and that in the present case the required payments were stated *not* to be wages (no doubt to avoid the very difficulty that arose in the *Coos Bay* case, where some of the individual employees wished the sums paid to them, not to the Fund), but the result was the same; in neither case did the employee actually receive the amounts into his pocket, whether they were called wages or not. The case is important because it shows there is no real distinction between employer-paid and employee-paid plans, a distinction which the trial court made in the present case. (opinion, p. 4.)

We examine now the authorities cited; first those given by respondent.

The first is, *City of Portland ex rel. National Hospital Association*, 9 Pac. 2d 115, which was cited in the Court’s memorandum as well. In that case, the contractor had agreed with the City of Portland, in connection with public work done for the city, that he would “fully secure and pay just claims, if any there be, of all persons furnishing labor or material under said contract.” The contractor agreed with the hospital association to pay a certain amount for each employee (and the contractor deducted that amount from the wages, although the contract with the hos-

pital association was silent on this) in return for health coverage. When the contractor defaulted, the association sought to obtain payment of its fees from the surety.

It was held that the surety was not liable. The Supreme Court held that under its contract the association was not concerned with the source of its fees, for it could look to the contractor for them whether or not he deducted them from the employees' wages. The employee owed the association nothing, and therefore could not have been deemed to have assigned anything to the association. Thus, there was no one before the Court who came within the category set forth in the statute, namely, "all persons furnishing labor" etc.

We believe the *City of Portland* case is to be distinguished from the one before us on at least three grounds. In the first place, the Oregon statute refers to the *persons* to whom claims shall be paid, that is, "persons furnishing labor"; but the California statute refers to the *subject matter* for which the contractor has defaulted, that is, his failure "to pay . . . for any work or labor."

In the second place, in the Oregon case it was a matter more or less of indifference to the laborer whether or not the health association was paid, because he was entitled to benefits anyway. This feature also distinguishes our holding in *California Western States Life Ins. Co. v. U.S.F. & G. Co.*, Civil Ap-

peal No. 2189, wherein we held that the Unemployment Disability carrier's premium is not covered by the surety bond of a public works contractor. This is because it does not concern the employee, who has no substantial interest whether the premium is paid or not. The same holds true of the cases of compensation carrier premiums.

Finally, the *City of Portland* case was decided in 1932, before the time of the National Labor Relations Act, which makes such plans for health insurance the subject of collective bargaining on behalf of all the employees. (*Coos Bay* case, *supra*.)

Also, we believe distinguishable are the several cases in which it has been held that income taxes withheld by the employer are not within the provisions of labor and material bonds. The laborer has no interest (above that of any citizen) in the payment to the government of his withheld taxes. His taxes are deemed paid even if the contractor fails to remit to the government, and he gets whatever refund he may be entitled to, though the employer has defaulted.

Likewise, it has been stated that the government has ample powers to protect itself in order to collect taxes. (*Gen. Casualty Co. v. United States*, 205 Fed. 2d 753, 755.) The United States need not appear as standing in the shoes of an unpaid workingman.

The case of *United States ex rel. Sherman v. Carter*, 33521, decided by the U. S. District Court on January 21, 1955 (and now on appeal), is cited by respond-

ents. The contract, under collective bargaining, for payment of employee health and welfare contributions, is the same as the one before us. The Court held that such payments are not recoverable from the defunct contractor's surety under the Miller Act. (Title 40 USCA 270a et seq.) However, apart from the fact that the judgment has been appealed, and in any case is not controlling upon us, we find it is to be distinguished from California cases in two respects: First, the Miller Act, in Section 270b of the United States Code, reads:

“Every person who has furnished labor or material in the prosecution of the work provided for in such contract, in respect of which a payment bond is furnished under section 270a of this title and who has not been paid in full”

may recover from the surety. Thus, as in the *City of Portland* case statute, the statute refers to the *person* who may collect, rather than to the *subject matter*, as does the California statute. This is by no means a too-refined distinction, because the Court pointed out in the *Carter* case, *supra*, that the *laborers* had been paid in full. In a sense, perhaps, they had been so paid; but, considering that there were no payments coming to *them*, or to trustees for them, it does not follow that there were no payments due *for labor*, as the California statute states it.

In the second place, the Miller Act evidently is to protect “those supplying labor and materials on government jobs substantially in the same way as they

are protected under state mechanics' lien laws." (*Carter* case, pp. 1 and 2; *United States v. Harman*, 192 Fed. 2d 999.)

Considering, finally, the reasoning of the Court in the *Carter* case to the effect that the benefits are not allocable to the employees on the specific job, but are reserved for employees on any job who have worked 400 hours in a six-month period, we think that it is not of importance, at least so far as the California statute is concerned. The test is that set forth in the statute. If the payments are for labor, they are covered by the surety bond.

It is argued by respondents that the fact that section 2404 of the Government Code was amended to include within its provisions payments due under the Unemployment Insurance Act is proof that other "fringe" benefits are not so included. But we think the legislature, when courts decided that the unemployment payments were not covered, simply made haste to cover them; we do not think the legislature would have those payments included and these excluded.

These cases presently before us are, as stated at the outset, the first ones before the courts. It seems to us that when the contractor and the union agreed upon payments by the former of the welfare funds, it was an agreed payment "for labor"; that the surety company could ascertain that these payments were to be made and could base its premium rates accordingly, just as the contractor must have included them in

his estimate of the cost of the job. They were ascertainable as much as were outright wages.

The judgments based on the orders sustaining the demurrers without leave to amend are reversed.

Dated, May 18th, 1955.

/s/ Preston Devine
Presiding Judge.

I concur:

/s/ Edward Molkenbuhr
Judge.

I dissent. I agree with the opinion of Judge Caulfield of the Municipal Court.

/s/ Daniel R. Schoemaker
Judge.

In the Superior Court of the State of California,
in and for the City and County of San Francisco

APPELLATE DEPARTMENT

Harry Sherman, et al., Plaintiffs and Appellants,	}	Appeal No. 2368
vs. Leonard Achterman, et al., Defendants and Respondents.		

J. F. Cambiano, et al., Plaintiffs and Appellants,	}	Appeal No. 2370
vs. Leonard Achterman, et al., Defendants and Respondents.		

MEMORANDUM OPINION ON PETITION
FOR REHEARING

On Petition for Rehearing it is urged that plaintiffs have no right to bring the action because: (a) they are not parties to the bond; and, (b) the cause of action is created by Section 4205 of the Government Code, not Section 4204 of that Code.

Although this argument was not stressed at the hearing before us and was not convincing to the trial court, nevertheless we have given it full consideration. We did not decide the case on the inability of counsel to answer a question put to him on oral argument.

We believe that although plaintiffs are not parties to the bond they may maintain the action as trustees. The United States Labor Relations Act contemplates that there may be such a trusteeship. (18 U.S.C. Sec. 186, Sub. Div. 5.) Section 369 C.C.P. allows trustees to sue. We think it likely that there was at least an equitable assignment to the trustees. (In re Schmidt, 24 Labor Cases (CCH) #68012). If the facts of the case do not sustain this proposition, it will be remembered that we are deciding upon judgment after sustaining of a demurrer without leave to amend.

We believe, too, that Sections 4204 and 4205 of the Government Code are cumulative, that the bond must comply with both, and that it is not necessary that one be entitled to the benefits of mechanics' lien laws in order to be protected under the public works surety acts. It has been held that the latter acts are broader in scope (*A. L. Young Mch. Co. v. Cupps*, 213 Cal. 210 and cases cited therein), and that, procedurally, one may sue on a contractor's bond without resorting to the Mechanics Lien Statutes. (*Sunset Lumber Co. v. Smith*, 95 Cal. App. 307.) If Section 4205 of the Government Code were the only one "creating" rights

against the surety, what is the purpose of Section 4204? We do not believe it is merely a prelude to 4205.

The petition for rehearing is denied.

Dated, June 17, 1955.

/s/ Preston Devine
Presiding Judge.

I concur:

/s/ Edward Molkenbuhr
Judge.

No. 14,703

IN THE

United States Court of Appeals
For the Ninth Circuit

UNITED STATES OF AMERICA for the Benefit and on
Behalf of Harry Sherman, Chas. Robinson, Ronald
D. Wright, Stuart Scofield, Lee Lalor, William
Ames, Ernest Clements, Carl Lawrence, Gordon
Pollock and Harold Sjoberg, as Trustees of the
Laborers Health and Welfare Trust Fund for
Northern California,

Appellants,

VS.

DONALD G. CARTER, Individually; DONALD G. CARTER,
Doing Business as Carter Construction Company,
CARTER CONSTRUCTION COMPANY and HARTFORD
ACCIDENT AND INDEMNITY Co.,

Appellees.

BRIEF FOR APPELLEE.

ROBERT J. DREWES,

DINKELSPIEL & DINKELSPIEL,

405 Montgomery Street, San Francisco 4, California,

Attorneys for Appellee.

FILED

AUG 15 1955

PAUL P. O'BRIEN, CLERK

Subject Index

	Page
Statement of the case.....	1
Argument	3
A. Employer contributions to a "health and welfare fund" fall neither within the letter nor the spirit of the Miller Act	3
B. The objectives of the Miller Act have been fully accomplished	9
C. The surety is not liable for attorneys' fees nor for liquidated damages	10
Conclusion	11

Table of Authorities Cited

Cases	Pages
Brogan v. National Surety Co., 246 U.S. 257, 38 S.C. 250, 62 L.Ed. 703	5
Coos Bay Lumber Co. v. Local 7-116 International Woodworkers of America (CIO), 279 Pac. (2d) 508.....	8
In re Louisville Daily News & Inquirer, 20 Fed. Supp. 465.	9, 10
City of Portland ex rel. National Hospital Association v. Heller, 9 Pac. (2d) 115	6, 12
Terry v. U. S. Fidelity & Guaranty Co., 82 Pac. (2d) 532, 119 A.L.R. 1276	11
United States to the use of Gibson v. Harman, 192 Fed. (2d) 999	9
United States to the use of Watsabaugh & Co. v. Seaboard Surety Co., 26 Fed. Supp. 681.....	6, 10, 11
United States ex rel. Southern G.-F. Company v. Landis & Young, 16 Fed. Supp. 832.....	7, 10, 12, 13

Statutes

Miller Act, 40 U.S.C.A. 270 et seq.....	2, 3, 9
---	---------

Miscellaneous

22 Opinions of the Attorney General, 198.....	4
---	---

No. 14,703

IN THE

United States Court of Appeals For the Ninth Circuit

UNITED STATES OF AMERICA for the Benefit and on
Behalf of Harry Sherman, Chas. Robinson, Ronald
D. Wright, Stuart Scofield, Lee Lalor, William
Ames, Ernest Clements, Carl Lawrence, Gordon
Pollock and Harold Sjoberg, as Trustees of the
Laborers Health and Welfare Trust Fund for
Northern California,

Appellants,

vs.

DONALD G. CARTER, Individually; DONALD G. CARTER,
Doing Business as Carter Construction Company,
CARTER CONSTRUCTION COMPANY and HARTFORD
ACCIDENT AND INDEMNITY Co.,

Appellees.

BRIEF FOR APPELLEE.

STATEMENT OF THE CASE.

The defendant Donald G. Carter, as general contractor, entered into two written contracts with the United States of America for the construction of certain buildings at Travis Air Force Base, Solano County, California, and Mather Field, Sacramento County, California (Tr. 5-6, 13). Said contracts provided that Carter would pay all mechanics and laborers employed by him not less than once each week

and in full at wage rates as determined by the Secretary of Labor and set forth in the specifications to the contracts (Tr. 13). The bond sued upon herein was furnished by Carter, as contractor, and executed by the appellee Hartford Accident and Indemnity Company, as surety, pursuant to the provisions of the Miller Act, 40 U.S.C.A. 270, et seq. (Tr. 6).

Pursuant to collective bargaining agreements, the defendant Carter obligated himself to pay into a "Health and Welfare Fund", seven and one-half ($7\frac{1}{2}$) cents an hour for each hour worked by the employees concerned. Article 2, Section 3 of the Trust Agreement establishing said fund provides that the contributions thereto shall not be deemed wages, and that the employee-beneficiaries shall not be entitled to receive any part thereof (Tr. 14, Exhibit C). (The beneficiaries of the Trust were not required and did not contribute thereto.) Section 4 of the same article provides that the employee-beneficiaries shall have no title nor interest to the fund other than as provided in the Trust Agreement. To enjoy the benefits of the fund an employee must work four hundred hours in a given six months' period; he need not work on any specific job and may draw benefits even though he is no longer working (Tr. 40).

The defendant Carter became a bankrupt (Tr. 41). It is stipulated that he paid all of the wages required by him to be paid under his contracts with the United States in full and without deduction (Tr. 13, 14). The contributions required of Carter to be made into the fund as described in the complaint on file remain unpaid.

The foregoing facts are not in dispute. Thereon the motion for summary judgment of the defendant and appellee Hartford Accident and Indemnity Company was granted by the Court below, and this appeal followed.

ARGUMENT.

A. EMPLOYER CONTRIBUTIONS TO A "HEALTH AND WELFARE FUND" FALL NEITHER WITHIN THE LETTER NOR THE SPIRIT OF THE MILLER ACT.

The appellants argue that Carter's obligation to make payments into the "Health and Welfare Fund" resulted from collective bargaining negotiations; that they were part of the "compensation" that he agreed to pay for labor; that the Miller Act is to be liberally construed, and to the extent that said contributions were not made, his employees were not paid "in full" as required by the Miller Act.

But the Miller Act is for the protection of, and the bond furnished by this appellee is conditioned upon, payment to "*all persons supplying labor and material in the prosecution of the work provided for in said contract*" and one need not challenge the doctrine of liberal construction, nor question the social and economic importance of health and welfare funds to demonstrate that the payments here in question fall neither within the letter nor the spirit of the Miller Act.

Before a plaintiff, such as appellants were below, can recover in an action upon a surety's bond, he

must establish first, that he furnished labor, and secondly, that the labor was furnished in the prosecution of the work provided for in the contract.

The contracts between the defendant Donald G. Carter and the United States provided that the former would pay the wages set forth in the specifications as determined by the Secretary of Labor, and it has been admitted that they were so paid, in full and without deduction. The payments which Carter bound himself to make to the "Health and Welfare Fund" do not relate in any way to the prosecution of the work provided for in the contracts. The payments were based upon man hours of work as a convenient, probably the only, method of providing so-called "fringe benefits" for workers in an industry characterized by irregular employment on an hourly basis, and no more furthered the construction of the buildings at Travis Air Force Base and Mather Field than would promises by Carter to provide work clothes, tools or a "coffee break". The contributions to the welfare fund were not wages, but employee benefits relating to the conditions of employment, AS A MATTER OF LAW AND BY AGREEMENT OF THE PARTIES, having no relationship to the prosecution of the work and arising out of a collective bargaining agreement to which neither the United States nor this respondent were parties.

The Attorney General of the State of California has expressed his views concerning the nature of contributions identical to those at bar. In *22 Opinions of the Attorney General*, 198, he distinguished "be-

tween pay and compensation on the one hand and the conditions of employment on the other” and concluded that payments such as these fall within the latter category. It was this citation, included by appellee in its Memorandum of Points and Authorities in Support of Motion for Summary Judgment, filed with the clerk of the Court below, which has led appellants to state on page 6 of their brief, and again at page 9, that the appellee concedes that health and welfare contributions are a part of the compensation agreed to be paid by the contractor for the services of labor. This respondent made no such concession and none can be inferred from a reading of the authority cited.

The test as to whether or not one supplying labor or materials can recover against the surety was stated by the Supreme Court of the United States in *Brogan v. National Surety Co.*, 246 U.S. 257, 38 S.C. 250, 62 L.Ed. 703. There the plaintiff furnished food and provisions to a contractor carrying on his work “in a comparative wilderness at some distance from any settlement” . . . where “there were no hotels or boarding houses”. The trial Court found that “they were necessary to and wholly consumed in such work” and gave judgment for the plaintiff. The Court of Appeals reversed. The Supreme Court reversed, and in an opinion by Justice Brandeis, said, “The Circuit Court of Appeals deemed immaterial the special circumstances under which the supplies were furnished and the findings of fact by the Trial Court that they were necessary to and wholly consumed in

the prosecution of the work provided for in the contract and bond. *In our opinion these facts are not only material, but decisive. They establish the conditions essential to liability on the bond.*" And District Judge Baldwin in *United States to the use of Watsabaugh & Co. v. Seaboard Surety Co.*, 26 Fed. Supp. 681, after reviewing many of the leading cases which had been decided as of the date of his opinion, phrased the rule as follows:

"The thought underlying each of the decisions in which it is held that the thing for which claim was made falls within the meaning of the words 'labor and materials' as used in the act involved in this case, is that the thing supplied was essential to carrying on and completing the work provided for in the contract and was wholly consumed in that work".

That the payments which Carter obligated himself to make into the welfare fund were not essential to the construction of the Government's buildings at Travis Air Force Base and Mather Field and created nothing which was or could be consumed therein, is too clear to require elaboration.

No case has been found in which the precise point at bar has been decided. However, analogous questions have heretofore been decided on similar facts. In *City of Portland ex rel. National Hospital Association v. Heller*, 9 Pac. (2d) 115, the contractor contracted with the plaintiff to pay for medical services to be rendered by the latter to the former's employees, the consideration therefor to be based upon the number of employees and the days worked by

each, said consideration to be deducted from the wages due. The plaintiff brought its action against the contractor and the latter's surety for a balance due it for such services, and recovered judgment. The Supreme Court of Oregon reversed as to the surety, saying:

"It is admitted that the service rendered by the association is not 'labor or material' furnished under the contract of the contractor with the City of Portland for which the surety is bound",

and:

"It makes little difference whether we treat this case as an action at law or as a suit in equity; in either event, there is no evidence on which to base a finding and judgment against the surety."

In *United States ex rel. Southern G.-F. Company v. Landis & Young*, 16 Fed. Supp. 832, the American Employers Insurance Company, as intervenor, sought to recover premiums upon a policy of employers liability insurance, contending that it had furnished labor in the form of medical attention, medicines, and hospital services. In a carefully considered and well reasoned opinion, the Court denied the claim, saying in part:

"It is not contended that any materials other than medicines and hospital treatment, were actually furnished by this intervenor, and, if it is to recover, the same must be upon the theory that the amount claimed was for labor furnished in the prosecution of the work. Payment of hospital and doctor bills could only indirectly affect the progress of the work by restoring the laborer

to a condition which would enable him to subsequently return to the job.”

The appellants have cited and quoted from *Coos Bay Lumber Co. v. Local 7-116 International Woodworkers of America (CIO)*, 279 Pac. (2d) 508. The question in that case was whether or not federal or state law authorized a union, through collective bargaining, to commit the wages of the employees which it represented to the financing of employee group insurance programs. It would appear to have no relevancy whatsoever to the question as to whether the trustees of a welfare fund can recover unpaid contributions from a Miller Act surety. The appellants also cite and rely upon the case of *Sherman v. Achterman* decided by the Appellate Department of the Superior Court of the State of California upon facts substantially the same as those in the case at bar. In that opinion, the majority of the Court distinguished the provisions of the Miller Act from those of the applicable state statute. If there be no distinction, that case was wrongly decided for the reasons heretofore given. The attention of this Honorable Court is directed to the fact that the Honorable Daniel R. Shoemaker dissented, and that of the five learned judges who have been called upon to decide the question at bar, three have agreed with the respondent.

**B. THE OBJECTIVES OF THE MILLER ACT HAVE
BEEN FULLY ACCOMPLISHED.**

The appellants assert that one of the objectives of the Miller Act is to avoid delays in the construction of government projects by assuring prompt payment of those furnishing labor and materials thereto; that if Carter failed or refused to make the contributions, his employees would strike, thereby delaying or terminating construction. There appearing to be many objectives, some good and some bad, which organized labor seeks to obtain by strike action, the argument appears to this respondent to be singularly without force. *But the short answer is that the Miller Act accomplishes the stated purpose by requiring that contractors also furnish a performance bond.* Carter did so (Tr. 13-14, Exhibit A).

The primary purpose of the Miller Act is to provide for persons supplying labor and materials on federal construction projects protection equal to that given in private construction by mechanics and materialmen's liens, and also to protect the United States (*United States to the use of Gibson v. Harman*, 192 Fed. (2d) 999); and the statutes creating these liens are "meant to protect and favor those who actually worked on, or contributed labor or materials to, the construction, improvement or repair of a building or other structure, *thereby enhancing its value* (*In re Louisville Daily News & Inquirer*, 20 Fed. Supp. 465, 466). Although no cases have been found, it could hardly be supposed that, were these private buildings, they would be lienable under the Mechanics' Lien laws for the unpaid contributions. The beneficiaries

have been paid the wages due them for their contribution to the buildings; the sums unpaid are for benefits which are unrelated to the construction of the buildings and add nothing to the value thereof (*United States ex rel. Southern G.F. Company v. Landis & Young*, supra).

**C. THE SURETY IS NOT LIABLE FOR ATTORNEYS' FEES
NOR FOR LIQUIDATED DAMAGES.**

The appellants state on page 22 of their brief that "Liquidated damages and attorneys' fees were a part of the agreed payment for labor . . . and as a part of such agreed payment, they should also be recoverable against the surety under a Miller Act bond". Inasmuch as they make no attempt to distinguish between contributions to the welfare fund, attorneys' fees and liquidated damages, the appellants apparently take the position that any benefits given by a contractor-employer to his employees as a result of collective bargaining, and any agreed monetary value ascribed thereto by the parties, is recoverable against a Miller Act surety in that amount. Such can hardly be the law.

Mechanics' liens were unknown at common law or at equity and are purely statutory (*In re Louisville Daily News & Inquirer*, supra). In the absence of a valid statute that expressly authorizes an allowance or taxation of attorneys' fees as costs, they may not be allowed or taxed as costs (*United States to use of Watsabaugh & Co. v. Seaboard Surety Co.*, supra).

The Miller Act makes no provision for the allowance of attorneys' fees in actions upon contractor's bonds. *United States v. Breedon*, and *United States v. Henley*, cited by the plaintiffs, were actions against Miller Act sureties. The Courts therein allowed attorneys' fees upon the grounds that the statutes of Alaska and Idaho, respectively, provided for attorneys' fees in actions to foreclose mechanics' liens. How a territorial or state statute can supply an omission of Congress to provide for such fees in a federal statute is difficult to understand. *United States v. Breedon* and *United States v. Henley* are in conflict with *United States to use of Watsabaugh & Co. v. Seaboard Surety Co.* and, it is submitted, were wrongly decided.

The respondent, Hartford Accident and Indemnity Co., was not a party to the Trust Agreement, and as to it, the appellants' damages, if any, are unliquidated. It is well settled that unliquidated damages may not be recovered from a surety on a contractor's bond (*Terry v. U. S. Fidelity & Guaranty Co.*, 82 Pac. (2d) 532, 119 A.L.R. 1276).

CONCLUSION.

The Courts of the United States and the Courts of the several states have often been called upon to determine whether certain types of services or certain kinds of materials, under certain circumstances, fall within the scope of contractors' statutory bonds; scores of such decisions are to be found in the books.

True it may be that these contributions are of more than ordinary social and economic importance; true it may be that the contributions are of great importance to those who are to enjoy the benefits which they make possible. But these considerations are of no assistance in the determination of whether such contributions may be recovered against a surety under a Miller Act bond. If they are not fairly within its intended scope, then those to whom they were to be paid must look for satisfaction to him who made the promise; if he is, or may become, judgment proof, that is but a contingency to which all would be litigants are exposed.

Here the contractor and his employees, through their representatives, entered into an agreement whereby the former agreed to make certain payments into a fund based upon man hours of work, the fund to be used to obtain medical and hospital benefits for the workers. The latter received nothing tangible and could enjoy the benefits only upon satisfying certain eligibility conditions; and the parties took pains to expressly stipulate that the said payments were not wages and that the employees had no direct interest therein. The method selected by the parties was one conveniently adapted to achieve the benefits desired. The same objectives could have been obtained had Carter contracted with a hospital to furnish the same services as in the *City of Portland* case; or with an insurer, as in *Landis & Young*; or had he himself directly employed a physician with the necessary equipment and staff: in all of which instances it

is clear that the persons furnishing the services could not recover from the surety therefor. The obligations incurred by Carter were not compensation for labor in the economic sense of a "price" for labor determined by the forces of supply and demand in a free market, but related to the conditions of labor, and were a part of his overhead or cost of doing business, just as was the cost of his contractor's permit (see *Landis & Young*).

The contributions were not payments for labor which were necessary to the construction of the buildings at Travis Air Force Base and Mather Field, nor were they for labor which was consumed therein. Carter's employees were paid in full for the labor which they supplied thereon and the value which they thereby created.

We respectfully submit that the judgment below should be affirmed.

Dated, San Francisco, California,
August 10, 1955.

ROBERT J. DREWES,
DINKELSPIEL & DINKELSPIEL,
Attorneys for Appellee.



No. 14,703

IN THE

United States Court of Appeals
For the Ninth Circuit

UNITED STATES OF AMERICA for the Benefit and on
Behalf of Harry Sherman, Chas. Robinson, Ronald
D. Wright, Stuart Scofield, Lee Lalor, William
Ames, Ernest Clements, Carl Lawrence, Gordon
Pollock and Harold Sjoberg, as Trustees of the
Laborers Health and Welfare Trust Fund for
Northern California,

Appellants,

vs.

DONALD G. CARTER, Individually; DONALD G. CARTER,
Doing Business as Carter Construction Company,
CARTER CONSTRUCTION COMPANY and HARTFORD
ACCIDENT AND INDEMNITY Co.,

Appellees.

REPLY BRIEF FOR APPELLANTS.

CHARLES P. SCULLY,
GARDINER JOHNSON,
THOMAS E. STANTON, JR.,
111 Sutter Street, San Francisco 4, California,
Attorneys for Appellants.

JOHNSON & STANTON,
Of Counsel.

FILED

SEP - 6 1955

PAUL P. O'BRIEN, CLERK



Table of Authorities Cited

Cases	Pages
Brogan v. National Surety Co. (1918), 246 U.S. 257.....	2
City of Portland ex rel. National Hospital Association v. Heller (1932), 139 Ore. 179, 9 Pac. (2d) 115.....	3, 4
Coos Bay Lumber Company v. Local 7-116, International Woodworkers of America (CIO), 279 Pac. (2d) 508, re'g den., 280 Pac. (2d) 412.....	4
United States for the use of Watsabaugh & Co. v. Seaboard Surety Co. (D. Mont. 1938), 26 F. Supp. 681.....	5, 6
United States v. Landis & Young (W.D. La. 1935), 16 F. Supp. 832	4

Codes	
California Labor Code, section 3751.....	5

No. 14,703

IN THE

**United States Court of Appeals
For the Ninth Circuit**

UNITED STATES OF AMERICA for the Benefit and on
Behalf of Harry Sherman, Chas. Robinson, Ronald
D. Wright, Stuart Scofield, Lee Lalor, William
Ames, Ernest Clements, Carl Lawrence, Gordon
Pollock and Harold Sjoberg, as Trustees of the
Laborers Health and Welfare Trust Fund for
Northern California,

Appellants,

vs.

DONALD G. CARTER, Individually; DONALD G. CARTER,
Doing Business as Carter Construction Company,
CARTER CONSTRUCTION COMPANY and HARTFORD
ACCIDENT AND INDEMNITY Co.,

Appellees.

REPLY BRIEF FOR APPELLANTS.

In its brief the appellee surety draws a distinction between "wages" and "employee benefits relating to the conditions of employment," and argues that its liability under its bond is limited to the former. Appellee points to no provision of the Miller Act or of its bond, however, which would justify any such limitation.

The obligation imposed by the Miller Act upon the surety is to pay *in full* for labor supplied to a bonded

project. Therefore, if health and welfare contributions are a part of the consideration agreed to be paid for labor they are within the obligation of the bond, regardless of whether they are called "wages" or "employee benefits relating to the conditions of employment."

Appellee has not advanced a single sound argument in answer to our clearly stated proposition that health and welfare contributions *are* a part of the compensation agreed to be paid for labor. Instead, it has cited *Brogan v. National Surety Co.* (1918) 246 U.S. 257 as its principal authority, a case which has no relevancy to the issue. In the *Brogan* case a groceryman was endeavoring to establish his status as a *supplier* and hence it was necessary for him to show that the groceries and provisions for which he claimed were furnished in the prosecution of the work. In this case, on the other hand, appellants are claiming as trustees for laborers who concededly furnished labor on the projects involved. The issue is not whether appellants have furnished insurance or other benefits which have been consumed in the prosecution of the work, but rather whether the payments which the contractor agreed to make to appellants were a part of the consideration for the labor which was admittedly performed on the projects.

It is not necessary that appellants show that they personally furnished labor to the projects—which obviously they cannot do. It is sufficient that they show that the men for whom they are trustees furnished the labor and that the payments which the

contractor agreed to make to them were a part of the agreed consideration for such labor.

Further, it is not necessary that appellants show that either the United States or the appellee surety was a party to the collective bargaining agreement which provided for the health and welfare payments. It is sufficient that the *contractor* was a party to such agreement, since it is the obligation of the contractor that is guaranteed by the appellee.

Appellee is in error when it asserts that the health and welfare payments "were not essential to the construction of the Government's buildings at Travis Air Force Base and Mather Field" (Br., p. 6). The obligation of the contractor to make these payments was imposed by the same collective bargaining agreement which fixed the amount of the hourly wages that he was required to pay to the laborers. A failure to make these payments was as much a breach of this agreement as a failure to pay the hourly wages would have been, and would have justified the same type of remedial action as a failure to pay wages; namely, the withholding of the services of the laborers who were entitled to the benefit of the payments.

The circumstance above mentioned serves to distinguish this case from the case of *City of Portland ex rel. National Hospital Association v. Heller* (1932), 139 Ore. 179, 9 Pac. (2d) 115, cited by appellee at page 6 of its brief. In the *City of Portland* case the court emphasized the fact that the plaintiff hospital association had no contractual relationship with the employees of the contractor, and expressly found that

the association could not be considered "in the position of assignee of the employees" (9 Pac. (2d) 116). In the case now before this court, on the other hand, appellants are trustees for the contractor's employees, the health and welfare plan which they administer was negotiated by the collective bargaining representative of such employees as a part of the consideration for the services furnished by the employees and appellant stands in the shoes of the employees as completely and effectively as an assignee (Opening Brief, pp. 16-17).

The *City of Portland* case has never been cited, except in *Sherman v. Achterman & Olesen*, Opening Brief, App., pp. vii-viii, where it was distinguished on three grounds, and in view of the recent decision of the Oregon Supreme Court in *Coos Bay Lumber Company v. Local 7-116, International Woodworkers of America* (CIO), 279 Pac. (2d) 508, *re'g den.*, 280 Pac. (2d) 412, cited in our opening brief at page 12, we question whether it would now be followed by the Oregon Court. In any event, however, the case is not pertinent here and furnishes no authority for a decision in favor of appellee.

The case of *United States v. Landis & Young* (W.D. La. 1935), 16 F. Supp. 832, and similar cases holding that Workmen's Compensation insurance premiums are not recoverable under a Miller Act bond, are also clearly distinguishable from the present case. The premiums paid by a contractor for employer liability or Workmen's Compensation insurance cannot be considered as a part of the consideration for the

services performed by the employees. Under California law, an employer is expressly prohibited from making or taking any deduction from the earnings of any employee either directly or indirectly to cover the whole or any part of the cost of Workmen's Compensation (California Labor Code, Section 3751). The insurance carrier has no relationship whatever to the employees covered by the insurance which it provides, and it has no basis for a claim that it stands in the same position as an assignee of such employees.*

The fact that the Miller Act requires that a Federal public works contractor supply a performance bond as well as a payment bond is no answer to our contention that the payment bond should be construed to cover health and welfare contributions in order to protect the Government against delays in performance of the work. If the laborers were to walk off a Government project because the contractor had failed to make the agreed health and welfare contributions, the fact that the contractor had posted a performance bond would not put the men back to work. The Government might ultimately recover damages for the delay caused by the work stoppage

*It should be noted, however, that the authorities are not unanimous in holding that Workmen's Compensation premiums are not recoverable under a Heard or Miller Act bond. In *United States for the use of Watsabaugh & Co. v. Seaboard Surety Co.* (D. Mont. 1938), 26 F. Supp. 681, which is cited by appellee as authority for its own position (Brief, pp. 6, 10, 11), the court held that such premiums were recoverable under a Heard Act bond because the thing supplied, namely, Workmen's Compensation insurance, "was essential to carrying on and completing the work provided for in the contract and was wholly consumed in the work" (26 F. Supp. 692).

from the surety on the performance bond, but a money recovery would be an inadequate remedy for the inconvenience and loss to the Government and public due to the delay.

Finally, with regard to appellants' claim for liquidated damages and attorneys' fees, appellee appears to contend that it cannot be held liable under its bond unless we establish that it was a party to the trust agreement which provides for these payments. This contention, we submit, is without merit. The *contractor* was a party to the trust agreement and to the collective bargaining agreements which provided for and maintained the trust agreement in effect, and it is the obligation of the contractor which the appellee has guaranteed. Appellee was not a party to any of the agreements whereby the contractor paid hourly wages to its employees, yet appellee concedes that it was obligated under its bond for the payment of these wages. The claims for health and welfare contributions, liquidated damages and attorneys' fees stand on the same footing as the claims for hourly wages; that is, they are all claims for the consideration which the contractor agreed to pay for labor which was performed on his projects.

The case of *United States to the use of Watsbaugh & Co. v. Seaboard Surety Co.*, *supra*, which appellee cites in support of its contention that attorneys' fees are not recoverable, is not in point. In that case there was no agreement by the contractor to pay the claimant a reasonable attorneys' fee in the event of a default, whereas in this case such an agree-

ment is included in the trust agreement to which the contractor was a party.

Appellee has chosen to ignore most of the arguments which we presented in our opening brief in support of our contention that health and welfare contributions are a part of the compensation agreed to be paid for the labor supplied to the projects covered by appellee's bond. In concluding its argument, it asserts that the contributions "were not compensation for labor in the economic sense of a 'price' for labor determined by the forces of supply and demand in a free market" (Brief, p. 13), but it cites no authority or sound reason in support of this assertion. The explanation for this significant and important omission, we submit, is that no such authority or reason exists.

As the court asked in the *Achterman* case (Opening Brief, App., p. iii), "what else are these but payments for the performance of work? Why, except to purchase labor, did the employer agree to make the payments?"

The answer to these questions is clear. The contractor on appellee's projects, like every other contractor in Northern California engaged in major construction projects, had to agree to make health and welfare contributions in order to obtain laborers to man his projects. The agreements which provided for these contributions were negotiated by the recognized and acknowledged collective bargaining representatives for these laborers and the *only* thing that these representatives had to sell was the services of

the men they represented. The amended complaint in this proceeding alleged that the contractor agreed to make the contributions and related payments "in consideration of labor and services performed and to be performed" for the contractor (Tr. 7-8) and appellee stipulated that such was the fact for the the purposes of the motion and counter-motion for summary judgment (Tr. 13).

The arguments advanced in appellee's brief clearly concede that if the health and welfare contributions and related payments are held to be part of the agreed compensation for labor, they are within the coverage of appellee's bond. For the reasons given in our opening brief and in this brief, we respectfully submit that this Court should hold that the payments *are* compensation for labor and that the judgment of the District Court should be reversed.

Dated, San Francisco, California,

August 31, 1955.

CHARLES P. SCULLY,

GARDINER JOHNSON,

THOMAS E. STANTON, JR.,

Attorneys for Appellants.

JOHNSON & STANTON,

Of Counsel.

No. 14711

United States
Court of Appeals
for the Ninth Circuit

THE COLEMAN COMPANY, INC., a corpora-
tion, Appellant,
vs.

HOLLY MANUFACTURING COMPANY, a cor-
poration, Appellee.

Transcript of Record

In Three Volumes

VOLUME I.

(Pages 1 to 368, inclusive.).

Appeal from the United States District Court for the Southern
District of California, Central Division

FILED

AUG 30 1955

PAUL P. O'BRIEN, CLERK

No. 14711

United States
Court of Appeals
for the Ninth Circuit

THE COLEMAN COMPANY, INC., a corporation,
Appellant,

vs.

HOLLY MANUFACTURING COMPANY, a corporation,
Appellee.

Transcript of Record

In Three Volumes

VOLUME I.

(Pages 1 to 368, inclusive.)

Appeal from the United States District Court for the Southern
District of California, Central Division



INDEX

[Clerk's Note: When deemed likely to be of an important nature, errors or doubtful matters appearing in the original certified record are printed literally in *italic*; and, likewise, cancelled matter appearing in the original certified record is printed and cancelled herein accordingly. When possible, an omission from the text is indicated by printing in *italic* the two words between which the omission seems to occur.]

	PAGE
Adoption of Statement of Points to be Relied	
Upon (USCA)	737
Answer to Complaint	5
Answer to First Supplemental Complaint.....	12
Appeal:	
Adoption of Statement of Points on (USCA)	737
Certificate of Clerk to Transcript of Record	
on	45
Notice of	32
Statement of Points on (DC).....	33
Certificate of Clerk to Transcript of Record..	45
Complaint	3
First Supplemental	10
Findings of Fact and Conclusions of Law.....	19
First Supplemental Complaint	10
Judgment, Interlocutory	29
Names and Addresses of Attorneys.....	1
Notice of Appeal	32
Order for Findings of Fact, Conclusions of	
Law and Interlocutory Judgment.....	17

Statement of Points to be Relied Upon (DC)	33
Adoption of (USCA)	737
Transcript of Proceedings and Testimony.....	46
Exhibits for Plaintiff:	
1—Copy of Patent No. 2,602,441 to Hollingsworth, et al.	739
Admitted in Evidence	47
4—Reprint from Industrial and Engineering Chemistry, July, 1954, "Potentiometric Instrument for Sulfur Determination by Henry Landsberg and Edward E. Escher"	747
Admitted in Evidence	204
10—Coleman Annual Report for 1952.....	751
Admitted in Evidence	280
11—Letter dated April 15, 1953, Dawson, Tilton & Graham to James B. Christie..	512
Admitted in Evidence	281
12—Letter dated June 4, 1953, Dawson, Tilton & Graham to James B. Christie, Drawing attached	514
Admitted in Evidence	281
13—"The Materials Use Survey" Housing and Home Finance Agency, Housing Research, Washington, D. C.....	777
Admitted in Evidence	369
14—Drawings made for the Coleman Company Showing "Trend Home"	785
Admitted in Evidence	373

Transcript of Proceedings—(Continued)

Exhibits for Plaintiff—(Continued)

15—Letter dated Feb. 23, 1954, Richard B. Hoegh to Stanley Johnson.....	517
Admitted in Evidence	424
16—Letter dated Feb. 19, 1954, Richard B. Hoegh to Thomas G. Gressett	517
Admitted in Evidence	423
18—Defendant's Admissions and Denials in Response to Plaintiff's Request for Admissions	519
Admitted in Evidence	49
19—Stipulation and Order re Interrogatories Nos. 5 and 6	525
Admitted in Evidence.....	50
26—Instructions "How to Install Coleman Gas Wall Heater, Model Nos. 67 and 68"	789
Admitted in Evidence	89
27—"Installation Instructions, Part No. 67-3101, Heat Economizer"	801
Admitted in Evidence	90
28—"Installation Instructions, Part No. 68A-3101, Heat Economizer"	805
Admitted in Evidence	91
29, 29A-29E—Group of Photographs Illustrating Test Installation at Time of Depositions	811
Admitted in Evidence	91-92

Transcript of Proceedings—(Continued)

Exhibits for Plaintiff—(Continued)

30—Comparison of Cross Sectional Areas of Upper and Lower Radiators, Coleman Furnace No. 67, etc.....	526
Admitted in Evidence	98
31—Report of Test by Engineer Biggars, 12/29/54	527
Admitted in Evidence	105
32—Booklet "American Standard Approval Requirements for Central Heating and Gas Appliance, Volume IV" page 23....	819
Admitted in Evidence	176
34A—Status Report showing Production, Or- ders, Shipment and Back Log on Holly Manufacturing Company Furnaces..	529-534
Admitted in Evidence	432
35—Computation, Holly Wall Heater Orders, 1950-1954	535
Admitted in Evidence	435
36—Computation, Holly Wall Heater Ship- ments, 1950-1954	535
Admitted in Evidence	436
37—Computation, Holly Wall Heater Back- log, 1949-1954	536
Admitted in Evidence	437
38—Chart "Holly Orders for Wall Heaters, Units, 1950-1954"	537
Admitted in Evidence	438

Transcript of Proceedings—(Continued)

Exhibits for Plaintiff—(Continued)

39—Chart “Holly Wall Heater Shipments, 1950-1954”	538
Admitted in Evidence	438
40—Chart “Holly Wall Heater Unfilled Or- der Backlog-Units at End of Year, 1950- 1954”	539
Admitted in Evidence	438
41—Document from the Bureau of Census of the U. S. Government “Heating and Cooking Equipment (Except Electric) 1951”	823
Admitted in Evidence	442
42—Computation “Total National Wall Heat- er. Shipments, 1950-1954”	541
Admitted in Evidence	444
43—Computation “Data Illustrating Commer- cial Success of New Type Holly Wall Heaters”	542
Admitted in Evidence	447

Exhibits for Defendant:

Prior Art Patents	837
C—Patent No. 1,361,389, McLeod, Dec. 7, 1920	839
D—Patent No. 1,698,775, Traut, Jan. 15, 1929	843
E—Patent No. 2,453,954, Wright, Nov. 16, 1948	846
F—Patent No. 2,484,457, Marble, Oct. 11, 1949	855
G—Patent No. 2,487,775, Cartter, Nov. 8, 1949	859

Transcript of Proceedings—(Continued)

Exhibits for Defendant—(Continued)

Prior Art Patents—(Continued)

H—Patent No. 139,111, Briggs, May 20, 1873	873
I—Patent No. 268,860, Browell, Dec. 12, 1882	877
J—Patent No. 2,209,324, Davison, July 30, 1940	880
K—Patent No. 2,491,664, James, Dec. 20, 1949	885
L—Patent No. 303,174, Mason, Aug. 5, 1884.	894
M—Patent No. 2,093,492, Snyder, Sept. 21, 1937	897
N—Patent No. 311,313, Hamilton, Jan. 27, 1885	902
O—Patent No. 2,102,727, Maher, Dec. 21, 1937	904
P—British Patent No. 140,989, McLeod, Apr. 8, 1920	909
Admitted in Evidence	295
Q—Deposition of Warren Blazier, Jr.....	543
Admitted in Evidence	383
R—Summary of Test Results during Deposi- tion of Warren, Blazier, Jr., with Photo- graphs	915
Admitted in Evidence	383
S—Pre-Trial Stipulation of Facts filed Oct. 22, 1954	622
Admitted in Evidence	49
T—Brochure “The New QC Metalbestos Wall Heater Vent Assembly”	941
Admitted in Evidence	146

Transcript of Proceedings—(Continued)

Exhibits for Defendant—(Continued)

U—Instructions for Installation and Operation of Holly Narrow Wall Recessed Heaters (S & D Series).....	945
Admitted in Evidence	171
V—Deposition of Henry Landsberg.....	629
Admitted in Evidence	272
W—Article in “The Daily Journal,” Feb. 13, 1954 “Holly Manufacturing Tests Patents in Suit”	951
Admitted in Evidence	294
X—Article in “The Daily Journal,” Mar. 3, 1954 “Gressett Company Makes Retraction”	955
Admitted in Evidence	295
Y—Portion of Minutes of New Products Committee, Aug. 14, 1952	734
Admitted in Evidence	300
AP—Agenda for November 16th Meeting, Project No. 43-17	959
Admitted in Evidence	400
AQ—Special Report on Holly Furnace Operation with Rear Stud Space Blocked, Mar. 5, 1954	961
Admitted in Evidence	404
AR—Special Report on Wall Heater Investigation—Comparison of Coleman No. 67-3101 and No. 68A3101 Economizers, June 29, 1954	969
Admitted in Evidence	405

Transcript of Proceedings—(Continued)

Witnesses:

Blazier, Warren, Jr. (Deposition)

—direct	543
—cross	572
—redirect	620

Blazier, Warren, Jr.

—direct	384
—cross	391
—recalled, direct	507
—cross	509

Hammond, Paul Harvey

—direct	427
—rebuttal, direct	467

Hollingsworth, John H.

—direct	50
—cross	111
—redirect	173, 196
—recross	194
—recalled, direct	451, 473
—cross	454, 492
—redirect	462, 464
—recross	463, 466

Kice, Jack

—direct	283
—cross	364

Landsberg, Henry (Deposition)

—direct	629
—cross	675
—redirect	725

Transcript of Proceedings—(Continued)

Witnesses—(Continued)

Landsberg, Henry

—direct	200
—cross	230
—redirect	257, 274
—recross	267

Petoff, George

—direct	396
—cross	406
—redirect	420
—recross	422

NAMES AND ADDRESSES OF ATTORNEYS

For Appellant:

LYON & LYON,
FREDERICK W. LYON,
811 West Seventh Street,
Los Angeles 17, California.

For Appellee:

JAMES B. CHRISTIE,
RICHARD B. HOEGH,
595 East Colorado,
Pasadena 1, California. [1*]

* Page numbers appearing at foot of page of original Transcript of Record.

In the United States District Court, Southern District of California, Central Division

Civil Action No. 15886—WM

HOLLY MANUFACTURING COMPANY, a corporation of California, Plaintiff,

vs.

THE COLEMAN COMPANY, INC., a corporation of Kansas, Defendant.

COMPLAINT FOR INFRINGEMENT OF LETTERS PATENT OF THE UNITED STATES,
No. 2,602,441

Comes Now the Plaintiff through its attorney and for cause of action against the Defendant alleges:

1. That Plaintiff Holly Manufacturing Company is a corporation organized and existing under and by virtue of the laws of the State of California, and having a principal place of business and a regular and established place of business at 875 South Arroyo Parkway, City of Pasadena, County of Los Angeles and State of California.

2. That Defendant The Coleman Company, Inc., is a corporation organized and existing under and by virtue of the laws of the State of Kansas, and having a principal place of business at 250 North St. Francis Avenue, Wichita 1, Kansas, and a regular and established place of business at 6506 South Stanford Avenue, City of Los Angeles, County of Los Angeles and State of California.

3. That the acts of infringement complained of

herein [2] have taken place in said City of Los Angeles, County of Los Angeles, State of California, within the Southern District of California and elsewhere throughout the United States.

4. That jurisdiction of this Court is founded upon the fact that this is an action arising under the Patent Laws of the United States, jurisdiction of this Court lying under Title 28, U.S. Code, Section 1338.

5. That Letters Patent of the United States No. 2,602,441 were duly and legally issued to Plaintiff on July 8, 1952, and since said date Plaintiff has been and still is the owner of said Letters Patent.

6. That Defendant, since the issuance of said Letters Patent on July 8, 1952, deliberately and willfully infringed said Letters Patent No. 2,602,441 by manufacturing, using and selling gas burning wall heaters embodying the inventions claimed in said Letters Patent and still is infringing, and will continue to so infringe to the irreparable damage of Plaintiff unless restrained by this Court.

7. That Plaintiff, since July 28, 1952, has placed the required statutory notice on all heaters manufactured by it in accordance with said Letters Patent of the United States No. 2,602,441, by marking each and every one of said heaters with the statutory notice "U. S. Patent No. 2,602,441".

8. That Plaintiff has given Defendant written notice of its infringement.

Wherefore, Plaintiff prays:

1. For a preliminary and permanent injunction

restraining Defendant from directly or indirectly infringing said Letters Patent of the United States No. 2,602,441.

2. For an accounting and recovery of damages for infringement of said Letters Patent of the United States No. 2,602,441.

3. For an assessment and awarding of costs and reasonable [3] attorney's fees against Defendant and for such other and further relief as to this Court may seem just and proper.

/s/ JAMES B. CHRISTIE,
Attorney for Plaintiff [4]

[Endorsed]: Filed September 23, 1953.

[Title of District Court and Cause.]

ANSWER

Now comes the defendant, by its attorneys, in answer to the Complaint, and admits, denies and alleges as follows:

I.

Defendant admits the allegations of Paragraph 1 of the Complaint herein.

II.

Defendant admits the allegations of Paragraph 2 of the Complaint herein.

III.

Defendant denies each and every of the allega-

tions of Paragraph 3 of the Complaint herein, and specifically denies that there have [5] been acts of infringement in the City of Los Angeles, County of Los Angeles, State of California, within the Southern District of California, or elsewhere in the United States.

IV.

Defendant admits the allegations of Paragraph 4 of the Complaint herein.

V.

Defendant denies each and every allegation of Paragraph 5 of the Complaint herein, except that defendant admits that Letters Patent of the United States No. 2,602,441 were issued to plaintiff on July 8, 1952, but specifically denies that said Letters Patent were duly and legally issued, and is not informed as to whether plaintiff is still the owner of said patent, and therefore denies the same and leaves plaintiff to its proof.

VI.

Defendant denies each and every allegation of Paragraph 6 of the Complaint herein.

VII.

Defendant denies each and every allegation of Paragraph 7 of the Complaint herein.

VIII.

Defendant admits that plaintiff has given written notice of the alleged infringement.

IX.

Defendant denies that plaintiff is entitled to any injunction, that plaintiff has been damaged by the action of the defendant whatsoever, and for further defenses, states as follows:

A. Said Letters Patent No. 2,602,441 is void and invalid because the alleged invention thereof was patented or described in the following patents (and other patents and publications which defendant prays leave to add hereto by amendment when they become known to it) in this country or in foreign countries, before [6] the alleged invention or discovery thereof by the patentees or for more than one year prior to the application for said United States Letters Patent No. 2,602,441:

United States Patents

Number	Name	Date
1,361,389	McLeod	Dec. 7, 1920
1,698,775	Traut	Jan. 15, 1929
2,453,954	Wright	Nov. 16, 1948
2,484,457	Marble	Oct. 11, 1949
2,487,775	Cartter	Nov. 8, 1949

B. Said Letters Patent No. 2,602,441 is void and invalid because the said Letters Patent discloses no patentable invention over what was known to the art at the time of the alleged invention or discovery thereof was purported to have been made. The patents set forth in Paragraph A above and as it may be amended, illustrate the knowledge of the art at that time.

C. Said Letters Patent No. 2,602,441 is void and invalid because the patentees were not the first in-

ventors of the subject matter purported to have been patented, or any material or substantial part thereof, the alleged invention, if patentable at all, having been made prior to the patentees, by the patentees listed in Paragraph A above and by others who were using reasonable diligence in adapting and perfecting the same and by others whose names defendant prays leave to add hereto by amendment when they become known to it.

D. Said Letters Patent No. 2,602,441 is void and invalid because the purported invention thereof has been in public use or on sale in this country for more than one year prior to the effective application date of said patent by the patentees or their assignees of the United States Letters Patent set forth in Paragraph A hereof, by the assignee of said patent 2,602,441, and by others whose names defendant prays leave to add hereto by amendment when [7] they become known to it.

E. Said Letters Patent No. 2,602,441 is invalid because it is ambiguous, incomplete, and insufficient, and because, for the purpose of deceiving the public, the description of the alleged invention filed in the Patent Office was made to contain less than the whole truth relative to the alleged invention, or more than was necessary to produce the desired results; and because such description was designed to mislead the public as to the character of the alleged invention.

F. Said Letters Patent No. 2,602,441 is invalid because each of the respective claims thereof is not supported by the specification in connection with

said Letters Patent, and each of them does not, particularly point out and distinctly claim the parts, improvements, or combination that the patentee claims as his invention and discovery, and because the invention claimed in said patent is sufficiently different from any invention indicated, suggested or described with respect to the original application.

G. Said Letters Patent No. 2,602,441 is void and invalid for lack of utility and because the claims thereof are indefinite and cover structures wholly lacking in utility.

H. Said patentees, John H. Hollingsworth and Karl L. Bedell, are not the first, original and joint inventors of the invention purported to be described and claimed in said Letters Patent.

Wherefore, defendant prays:

(a) For judgment dismissing the Complaint herein;

(b) For costs, reasonable attorneys' fees, and such further relief as may be just and equitable.

Dated: November 17, 1953.

LYON & LYON,
/s/ FREDERICK W. LYON,
Attorneys for Defendant [8]

Affidavit of Service by Mail attached [9]

[Endorsed]: Filed November 17, 1953.

[Title of District Court and Cause.]

FIRST SUPPLEMENTAL COMPLAINT

Comes Now the Plaintiff and for cause of action against the Defendant alleges as follows:

1. That Plaintiff Holly Manufacturing Company is a corporation organized and existing under and by virtue of the laws of the State of California, and having a principal place of business and a regular and established place of business at 875 South Arroyo Parkway, City of Pasadena, County of Los Angeles and State of California.

2. That Defendant The Coleman Company, Inc., is a corporation organized and existing under and by virtue of the laws of the State of Kansas, and having a principal place of business at 250 North St. Francis Avenue, Wichita 1, Kansas, and a regular and established place of business at 6506 South Stanford Avenue, City of Los Angeles, County of Los Angeles and State of California.

3. That the acts of infringement complained of herein have [10] taken place in said City of Los Angeles, County of Los Angeles, State of California, within the Southern District of California and elsewhere throughout the United States.

4. That jurisdiction of this Court is founded upon the fact that this is an action arising under the Patent Laws of the United States, jurisdiction of this Court lying under Title 28, U.S. Code, Section 1338.

5. That Letters Patent of the United States No.

2,602,441 were duly and legally issued to Plaintiff on July 8, 1952, and since said date Plaintiff has been and still is the owner of said Letters Patent.

6. That prior to the filing and service of the complaint herein, Defendant manufactured and sold gas-burning wall heaters designated as Defendant's Models No. 64, 67, 68 and 69 and that said wall heaters included a secondary heat exchanger four feet in length known as Defendant's 4-foot economizer and that said wall heaters embodied the inventions claimed in said Letters Patent. That since on or about November 2, 1953 Defendant has been manufacturing and selling and still is manufacturing and selling gas-burning wall heaters designated as Defendant's Models No. 64, 67, 68 and 69 and that said wall heaters manufactured and sold by Defendant since on or about November 2, 1953 have included and still include a secondary heat exchanger three feet in length known as Defendant's 3-foot economizer. That Defendant, since on or about November 2, 1953, has been and still is infringing said Letters Patent by making, using and selling gas-burning wall heaters designated as its Models No. 64, 67, 68 and 69, and will continue to so infringe said Letters Patent to the irreparable damage of the Plaintiff unless restrained by this Court.

7. That Plaintiff, since July 28, 1952, has placed the required statutory notice on all heaters manufactured by it in accordance with said Letters Patent of the United States No. 2,602,441, by marking

each and every one of said heaters with the statutory notice "U.S. Patent No. 2,602,441". [11]

Wherefore, Plaintiff prays:

1. For a preliminary and permanent injunction restraining Defendant from directly or indirectly infringing said Letters Patent of the United States No. 2,602,441.

2. For an accounting and recovery of damages for infringement of said Letters Patent of the United States No. 2,602,441.

3. For an assessment and awarding of costs and reasonable attorney's fees against Defendant and for such other and further relief as to this Court may seem just and proper.

/s/ JAMES B. CHRISTIE,

Attorney for Plaintiff [12]

[Endorsed]: Filed November 23, 1954.

[Title of District Court and Cause.]

ANSWER TO FIRST SUPPLEMENTAL COMPLAINT

Now comes the Defendant, by its attorneys, and in answer to the First Supplemental Complaint, admits, denies and alleges as follows:

I.

Defendant admits the allegations of Paragraph 1 of the Complaint herein.

II.

Defendant admits the allegations of Paragraph 2 of the Complaint herein.

III.

Answering Paragraph 3 of the Complaint herein, Defendant [13] admits that the acts charged to infringe took place in the City of Los Angeles, County of Los Angeles, State of California, within the Southern District of California, or elsewhere throughout the United States, but specifically denies that said acts of infringement of Letters Patent No. 2,602,441 ever took place.

IV.

Defendant admits the allegations of Paragraph 4 of the Complaint herein.

V.

Defendant denies each and every allegation of Paragraph 5 of the Complaint herein, except that defendant admits that Letters Patent of the United States No. 2,602,441 were issued to plaintiff on July 8, 1952, but specifically denies that said Letters Patent were duly and legally issued, and is not informed as to whether plaintiff is still the owner of said patent, and therefore denies the same and leaves plaintiff to its proof.

VI.

Defendant admits that it has manufactured and sold Models Nos. 64, 67, 68 and 69 with a 4-foot economizer thereon, but denies that said wall heaters embody the inventions claims in Letters Patent No. 2,602,441.

Defendant further admits that since November 2, 1953 Defendant has been manufacturing and selling, and still is manufacturing and selling gas burning wall heaters designated as Defendant's Models Nos. 64, 67, 68 and 69, and that since November 2, 1953 said heaters included a secondary heat exchanger three feet in length known as Defendant's 3-foot economizer, but denies that any device manufactured by Defendant and, specifically, Models Nos. 64, 67, 68 and 69, infringe Letters Patent No. 2,602,441.

VII.

Defendant is without knowledge as to the allegations of Paragraph 7 and, therefore, denies each and every allegation thereof. [14]

VIII.

Defendant denies that Plaintiff is entitled to any injunction, that plaintiff has been damaged by any acts of the Defendant whatsoever, and for further defenses, states as follows:

A. Said Letters Patent No. 2,602,441 is void and invalid because the alleged invention thereof was patented or described in the following patents (and other patents and publications which Defendant prays leave to add hereto by amendment when they become known to it) in this country or in foreign countries, before the alleged invention or discovery thereof by the patentees or for more than one year prior to the application for said United States Letters Patent No. 2,602,441:

United States Patents

Number	Name	Date
1,361,389	McLeod	Dec. 7, 1920
1,698,775	Traut	Jan. 15, 1929
2,453,954	Wright	Nov. 16, 1948
2,484,457	Marble	Oct. 11, 1949
2,487,775	Cartter	Nov. 8, 1949
139,111	Briggs	May 20, 1873
268,860	Browell	Dec. 12, 1882
2,209,324	Davison	July 30, 1940
2,491,664	James	Dec. 20, 1949
303,174	Mason	Aug. 5, 1884
2,093,492	Snyder	Sept. 21, 1937

Foreign Patents

140,989 (British) McLeod Apr. 8, 1920

B. Said Letters Patent No. 2,602,441 is void and invalid because the said Letters Patent discloses no patentable invention over what was known to the art at the time of the alleged invention or discovery thereof was purported to have been made. The patents set forth in Paragraph A above and as it may be amended, [15] illustrate the knowledge of the art at that time.

C. Said Letters Patent No. 2,602,441 is void and invalid because the patentees were not the first inventors of the subject matter purported to have been patented, or any material or substantial part thereof, the alleged invention, if patentable at all, having been made prior to the patentees, by the patentees listed in Paragraph A above and by others who were using reasonable diligence in adapting and perfecting the same and by others whose names

Defendant prays leave to add hereto by amendment when they become known to it.

D. Said Letters Patent No. 2,602,441 is void and invalid because the purported invention thereof has been in public use or on sale in this country for more than one year prior to the effective application date of said patent by the patentees or their assignees of the United States Letters Patent set forth in Paragraph A hereof, by the assignee of said patent 2,602,441, and by others whose names defendant prays leave to add hereto **by amendment** when they become known to it.

E. Said Letters Patent No. 2,602,441 is invalid because it is ambiguous, incomplete, and insufficient, and because, for the purpose of deceiving the public, the description of the alleged invention filed in the Patent Office was made to contain less than the whole truth relative to the alleged invention, or more than was necessary to produce the desired results; and because such description was designed to mislead the public as to the character of the alleged invention.

F. Said Letters Patent No. 2,602,441 is invalid because each of the respective claims thereof is not supported by the specification in connection with said Letters Patent, and each of them does not, particularly point out and distinctly claim the parts, improvements, or combination that the patentee claims as his invention and discovery, and because the invention claimed in said [16] patent is sufficiently different from any invention indicated,

suggested or described with respect to the original application.

G. Said Letters Patent No. 2,602,441 is void and invalid for lack of utility and because the claims thereof are indefinite and cover structures wholly lacking in utility.

H. Said patentees, John H. Hollingworth and Karl L. Bedell, are not the first, original and joint inventors of the invention purported to be described and claimed in said Letters Patent.

Wherefore, Defendant prays:

(a) For judgment dismissing the Complaint herein;

(b) For costs, reasonable attorneys' fees, and such further relief as may be just and equitable.

Dated at Los Angeles, California, this 18th day of October, 1954.

LYON & LYON,
/s/ FREDERICK W. LYON,
Attorneys for Defendant [17]

Affidavit of Service by Mail attached. [18]

[Endorsed]: Filed October 19, 1954.

[Title of District Court and Cause.]

ORDER FOR FINDINGS OF FACT, CONCLUSIONS OF LAW AND INTERLOCUTORY JUDGMENT

This cause having been tried and submitted for decision and it appearing to the court

(a) that Letters Patent No. 2,602,441 in suit describe the invention of new and useful improvements [35 U.S.C. § 101] in "Wall heaters fired with gaseous fuel", and are valid as to each of claims 1, 2, 3 and 4 thereof [35 U.S.C. § 112];

(b) that as charged in plaintiff's first supplemental complaint, defendant has intentionally infringed the patent in suit by making, using and selling gas-burning wall heaters designated as defendant's Model No. 67 embodying the invention of the patent in suit; [19]

(c) that plaintiff is entitled to judgment against defendant for damages sustained as a proximate result of defendant's infringement of any of claims 1, 2, 3 and 4 of the patent in suit, to be assessed pursuant to 35 U.S.C. § 284;

(d) that plaintiff is entitled to an injunction restraining defendant and all persons designated in Rule 65(d) of the Federal Rules of Civil Procedure, for the remainder of the term for which said Letters Patent have been granted, from directly or indirectly, in any way or manner infringing, or offering or threatening to infringe, or aiding or abetting others in infringing, any of claims 1, 2, 3 and 4 of said Letters Patent;

(e) that decision on any prayer for increased damages pursuant to 35 U.S.C. § 284, or for attorney fees pursuant to *id.* § 285, should be reserved until after determination of plaintiff's damages; and

(f) that this cause should be referred to a Special Master, pursuant to Rule 53 of the Federal Rules of

Civil Procedure, with directions to hear all relevant evidence on the issue of damages to be assessed, and to report his findings of fact and conclusions of law with respect to the assessment of such damages in accordance with 35 U.S.C. § 284;

It Is Ordered that plaintiff lodge with the Clerk within ten days findings of fact, conclusions of law and interlocutory judgment accordingly, to be settled pursuant to local rule 7.

It Is Further Ordered that the Clerk this day serve [20] copies of this order by United States mail on the attorneys for the parties appearing in this cause.

January 31, 1955.

/s/ WM. C. MATHES,

U. S. District Judge [21]

[Endorsed]: Filed January 31, 1955.

[Title of District Court and Cause.]

FINDINGS OF FACT AND CONCLUSIONS OF LAW

Upon trial being had in open court and for good cause shown, the Court hereby makes its findings of fact and conclusions of law as follows:

1. That plaintiff, Holly Manufacturing Company, is a corporation organized and existing under the laws of the State of California and has its

principal place of business in the City of Pasadena, County of Los Angeles and State of California;

2. That defendant, The Coleman Company, Incorporated, is a corporation organized and existing under the laws of the State of Kansas and has its principal place of business in the City of Wichita, Kansas, and a regular and established place of business in the City of Los Angeles, County of Los Angeles and State of California; [22]

3. That this is an action arising under the patent laws of the United States; that this court has jurisdiction of the subject matter of the action pursuant to the provisions of section 1338 of the Judicial Code, 28 U.S.C. sec. 1338;

4. That on July 8, 1952 Letters Patent No. 2,602,441 was duly issued to plaintiff on application serial No. 222,500 filed April 25, 1951;

5. That plaintiff is the owner of all right, title and interest in and to said Letters Patent No. 2,602,441, together with all rights of action for infringement thereof;

6. That plaintiff in its complaint and first supplemental complaint charges defendant with infringement of claims 1, 2, 3 and 4 of the patent in suit;

7. That the accused devices are defendant's wall heaters models No. 64, 67, 68 and 69 and are exemplified by Exhibits 24 through 24e and Exhibits 25 through 25d; that prior to November 2, 1953 defendant's wall heaters models No. 64, 67, 68 and 69 manufactured and sold by defendant were equipped with defendant's 4-foot economizer; that

at all times from and after November 2, 1953 defendant has not manufactured and sold said heaters equipped with its 4-foot economizer; that all defendant's wall heaters models No. 64, 67, 68 and 69 manufactured and sold by defendant since November 2, 1953 have been equipped with defendant's 3-foot economizer;

8. That defendant has manufactured and sold substantial numbers of its wall heaters models No. 64, 67, 68 and 69 with both the 4-foot economizer and the 3-foot economizer;

9. That for a long time prior to the invention of the patent in suit, the thermal input of wall heaters could not be increased substantially without excessively heating combustible walls in which the heaters were installed, and that these hot walls were encountered in both the lower and upper portions of the wall between floor and ceiling adjacent the heater; that wall heater manufacturers have no [23] control of the height of flues attached to their heaters in buildings and that prior to the invention of the patent in suit, there was inadequate control of the amount of warm air sucked from the room into the flue from the draft hood and thus lost, with consequent decrease in heating efficiency; that the combination of elements described and claimed in the patent in suit cooperate to permit the thermal input of wall heaters to be increased without bringing about excessive wall temperatures at any point in the wall from floor to ceiling, and without reducing thermal efficiency of the wall heaters; and that the invention of the patent in suit has simultane-

ously solved the hot wall problem from floor to ceiling, increased thermal efficiency while permitting increased heat input, improved air circulation within the room, minimized heat loss due to warm air being sucked out of the room into the flue through the draft hood, and has rendered this heat loss substantially independent of flue height;

10. That it required the exercise of inventive faculty to invent the combination defined by each of claims 1, 2, 3 and 4 of Letters Patent No. 2,602,441 in suit;

11. That the combination of elements defined by each of claims 1, 2, 3 and 4 of Letters Patent No. 2,602,441 in suit cooperate to produce a new and beneficial result unattained before the invention of said patent was made, and that the results of such combination exceed the accumulation of the results of the individual elements of such combination;

12. That John H. Hollingsworth and Karl L. Bedell, who are named as the inventors in the patent in suit, are the original and first inventors of certain new and useful improvements in gas-burning wall heaters as claimed in each of claims 1, 2, 3 and 4 of the patent in suit;

13. That Letters Patent No. 2,602,441 in suit is valid as to each of claims 1, 2, 3 and 4 thereof; [24]

14. That the disclosure contained in Letters Patent No. 2,602,441 in suit is sufficient to enable a person skilled in the art to which the patent pertains to accomplish the objects of the invention;

15. That Letters Patent No. 2,602,441 in suit is not ambiguous, incomplete, or insufficient, and the

description of the invention filed in the Patent Office was not made to contain less than the whole truth relative to the alleged invention; that the description of the invention filed in the Patent Office was not made to contain more than was necessary to produce the desired results; that the description of the invention was not designed to mislead the public as to the character of the invention;

16. That each of claims 1, 2, 3 and 4 of Letters Patent No. 2,602,441 in suit is supported by the specification in said patent and, construed in the light of such specification, each of such claims particularly points out and distinctly claims the parts, improvements or combination of the invention; that the inventions claimed in each of claims 1, 2, 3 and 4 of said patent is not different from any inventions indicated, suggested, described or claimed in the application therefor;

17. That defendant introduced in evidence 14 prior art patents (Exhibits C through P) for the purpose of showing that the invention of the patent in suit was anticipated by the prior art; that said prior art patents, taken either singly or in combination, do not describe a gas burning wall heater wherein the principle, or mode of operation, or results attained are equivalent to those of the patent in suit; that said prior art patents, taken either singly or in combination, do not describe or suggest the group of cooperative elements described and claimed by the patent in suit; that of such exhibits, Exhibits C, D, E, F and G were cited by the Patent Office in the file wrapper of the patent in suit; that

neither the remainder of said exhibits (Exhibits H through P) nor any other prior art [25] relied upon by defendant more nearly discloses the invention of the patent in suit than do the references cited by the Patent Office in the file wrapper of said patent; that none of the prior art references, taken either singly or in combination, anticipates the invention of the patent in suit;

18. That the invention of the patent in suit represents a new and useful improvement in wall heaters fired with gaseous fuel and has provided a substantial contribution to the art;

19. That the proceedings in the Patent Office had as to the application for the patent in suit, serial No. 222,500 (defendant's Exhibit A) or the file wrapper of the abandoned application, serial No. 157,670 filed April 24, 1950 (defendant's Exhibit B), do not limit the scope of claims 1, 2, 3 or 4 of the patent in suit; that plaintiff made no admissions in either of said file wrappers which would restrict or limit the scope of claims 1, 2, 3 or 4;

20. That prior to serving and filing the complaint herein plaintiff gave written notice of infringement to the defendant;

21. That defendant's wall heaters models No. 64, 67, 68 and 69 equipped with defendant's 4-foot economizer, exemplified by Exhibits 24 through 24e, contain all the elements of each of claims 1, 2, 3 and 4 of Letters Patent No. 2,602,441 in suit;

22. That defendant's wall heaters models No. 24, 67, 68 and 69 equipped with defendant's 3-foot economizer, exemplified by Exhibits 25 through 25d,

contain all the elements of each of claims 1, 2, 3 and 4 of the patent in suit;

23. That defendant undertook the manufacture and sale of its wall heaters models No. 64, 67, 68 and 69 after defendant's New Products Committee and its design engineers had seen an exemplar of plaintiff's device which embodied the inventions of the patent in suit;

24. That defendant's wall heaters models No. 64, 67, 68 and 69 manufactured and sold by defendant prior to November 2, 1953 [26] employed defendant's 4-foot economizer which was adapted to receive air flowing upward outside the first box and inside the wall as taught and claimed by the patent in suit;

25. That after the plaintiff had sent notice of infringement of the patent in suit to the defendant, defendant represented to the plaintiff that defendant was redesigning defendant's wall heaters models No. 64, 67, 68 and 69 to prevent the flow of air upward into the second box or economizer from the conduit provided outside the first box and inside the wall, but that defendant's redesigned wall heaters models No. 64, 67, 68 and 69 which were manufactured and sold by the defendant on or after November 2, 1953 and which employed defendant's 3-foot economizer did not prevent such flow of air;

26. That defendant's wall heaters models No. 64, 67, 68 and 69 manufactured and sold by defendant on or after November 2, 1953 employed defendant's

so-called 3-foot economizer which was adapted to receive air flowing upward outside the first box and inside the wall as taught and claimed by the patent in suit;

27. That the upper radiator in all defendant's wall heaters models No. 64, 67, 68 and 69 is made substantially smaller in horizontal cross section than the first radiator in such heaters in order to minimize loss of efficiency of the heater when warm air is drawn from the room through the draft hood to dilute the combustion products in the upper radiator;

28. That all of defendant's wall heaters models No. 64, 67, 68 and 69 infringe each of claims 1, 2, 3 and 4 of Letters Patent No. 2,602,441 in suit;

29. That the inlet grilles on the defendant's devices, designated as grilles 7 and 8 on Exhibit 24a, contribute some air to the flow of air through defendant's economizers, exemplified by Exhibits 24b and 25a; that at best, such grilles function merely as an addition to the structure and do not avoid infringement; [27]

30. That defendant's infringement of claims 1, 2, 3 and 4 of the patent in suit has been and is intentional, conscious and deliberate and that defendant threatens to continue to infringe said claims and will infringe said claims unless enjoined by this court;

31. That all plaintiff's wall heaters exemplified by Exhibits 20 through 20d and Exhibit 44 embody the inventions claimed in the patent in suit;

32. That plaintiff's manufacture and sale of wall heaters exemplified by Exhibits 20 through 20d and Exhibit 44 has been commercially successful, and that defendant has had substantial commercial success in the manufacture and sale of its wall heaters models No. 64, 67, 68 and 69; and

33. That plaintiff has committed no acts which prevent it from seeking or obtaining relief in a court of equity for infringement of the patent in suit.

Conclusions of Law

I.

That this Court has jurisdiction of the subject matter of the action and of the parties to the action;

II.

That plaintiff is entitled to damages sustained as a proximate result of defendant's infringement of each of claims 1, 2, 3 and 4 of the Letters Patent No. 2,602,441 in suit, to be assessed pursuant to the provisions of 35 U.S.C. sec. 284;

III.

That plaintiff is entitled to an accounting to ascertain pursuant to the provisions of 35 U.S.C. sec. 284 the amount of its damages sustained as a proximate result of defendant's infringement of each of claims 1, 2, 3 and 4 of said patent and in particular the amount of its damages sustained as a proximate result of defendant's manufacture, use and sale of

defendant's wall heaters models Nos. 64, 67, 68 and 69 equipped both with defendant's 4-foot economizer and with defendant's 3-foot economizer;

IV.

That plaintiff is entitled to an injunction as follows:

(a) That defendant, its officers, agents, servants, employees and those persons, companies or corporations in active concert or participation with them be and each of them is hereby enjoined from making or causing to be made, or offering or threatening to make, from using or causing to be used, or offering or threatening [29] to use, or selling or causing to be sold, or offering or threatening to sell, or contributing to the making, using or selling of the combination patented in and by each of claims 1, 2, 3 and 4 of the said Letters Patent No. 2,602,441 for the remainder of the term thereof;

(b) That defendant, its officers, agents, servants, employees and those persons, companies or corporations in active concert or participation with them be and each of them is hereby enjoined from making or causing to be made, or offering or threatening to make, from using or causing to be used, or offering or threatening to use, or selling, or offering, or threatening to sell, or contributing to the making, using or selling of any wall heaters of the identical construction as defendant's wall heaters models 64, 67, 68 and 69, or any wall heaters of substantially the same construction as defendant's

wall heaters models 64, 67, 68 and 69 for the remainder of the term of said Letters Patent No. 2,602,441.

Dated: February 17, 1955.

/s/ WM. C. MATHES,

United States District Judge [30]

Acknowledgment of Service attached.

[Endorsed]: Lodged February 10, 1955.

[Endorsed]: Filed February 18, 1955.

In the United States District Court, Southern District of California, Central Division

No. 15,886-WM

HOLLY MANUFACTURING COMPANY, a corporation of California, Plaintiff,

vs.

THE COLEMAN COMPANY, INC., a corporation of Kansas, Defendant.

INTERLOCUTORY JUDGMENT

This cause having been tried before the Court sitting without jury, and the plaintiff having been represented by its counsel James B. Christie and Richard B. Hoegh, and the defendant having been represented by its counsel Frederick W. Lyon, and the cause having been tried and submitted for decision upon the issues raised by plaintiff's complaint

and first supplemental complaint and the answers of defendant thereto, and the Court having made its findings of fact and conclusions of law, good cause appearing therefor,

It Is Hereby Ordered, Adjudged and Decreed:

1. That plaintiff owns all right, title and interest in and to Letters Patent No. 2,602,441 in suit granted July 8, 1952, to plaintiff for gas burning wall heaters, together with all rights of action for infringement thereof; [31]

2. That Letters Patent No. 2,602,441 in suit describes the invention of new and useful improvements in wall heaters fired with gaseous fuel, and is valid as to each of claims 1, 2, 3 and 4 thereof;

3. That as charged in plaintiff's complaint and first supplemental complaint, defendant intentionally has infringed the patent in suit by making, using and selling gas-burning wall heaters designated as defendant's Models Nos. 64, 67, 68 and 69 which embody the invention of the patent in suit; that said wall heaters manufactured and sold by defendant are exemplified by plaintiff's Exhibits 24 through 24e and 25 through 25d;

4. That plaintiff is entitled to damages from defendant sustained as a proximate result of defendant's infringement of any of claims 1, 2, 3 and 4 of the patent in suit, and that said damages be assessed pursuant to the provisions of 35 U.S.C. sec. 284.

5. (a) That defendant, its officers, agents, servants, employees and thos persons, companies or corporations in active concert or participation with

them be and each of them is hereby enjoined from making or causing to be made, or offering or threatening to make, or using or causing to be used, or offering or threatening to use, or selling or causing to be sold, or offering or threatening to sell, or contributing to the making, using or selling of the combination patented in and by each of claims 1, 2, 3 and 4 of the said Letters Patent No. 2,602,441 for the remainder of the term thereof;

(b) That defendant, its officers, agents, servants, employees and those persons, companies or corporations in active concert or participation with them be and each of them is hereby enjoined from making or causing to be made, or offering or threatening to make, or using or causing to be used, or offering or threatening to use, or selling, or offering, or threatening to [32] sell, or contributing to the making, using or selling of any wall heaters of the identical construction as defendant's wall heaters models 64, 67, 68 and 69, or any wall heaters of substantially the same construction as defendant's wall heaters models 64, 67, 68, 69 for the remainder of the term of said Letters Patent No. 2,602,441.

6. That this cause be and hereby is referred to Howard V. Calverley as Master pro hac vice, pursuant to Rule 53 of the Federal Rules of Civil Procedure, with directions (a) to hear and determine an accounting as to plaintiff's damages, and particularly plaintiff's damages with respect to defendant's manufacture, use and sale of defendant's wall heaters model Nos. 64, 67, 68 and 69 equipped both with the 4-foot economizer and the 3-foot

economizer, to be assessed pursuant to 35 U.S.C. sec. 284, (b) to hear all relevant evidence on the issue of damages to be assessed and (c) to report his findings of fact and conclusions of law with respect to the assessment of such damages in accordance with the provisions of 35 U.S.C. sec. 284.

7. That decision on any prayer for increased damages pursuant to the provisions of 35 U.S.C. sec. 284, or for attorney's fees, pursuant to the provisions of 35 U.S.C. sec. 285, be and is hereby reserved until after determination of plaintiff's damages.

8. That plaintiff be awarded his costs of suit in the sum of \$690.74.

Dated: February 17, 1955.

/s/ WM. C. MATHES,

United States District Judge [33]

Acknowledgment of Service attached. [34]

[Endorsed]: Lodged February 10, 1955.

[Endorsed]: Filed February 18, 1955.

[Title of District Court and Cause.]

NOTICE OF APPEAL

Notice Is Hereby Given that The Coleman Company, Inc., defendant above named, appeals to the United States Court of Appeals for the Ninth Cir-

cuit from the Interlocutory Judgment entered in this action on February 18, 1955.

Dated this 24th day of February, 1955.

LYON & LYON,
/s/ By FREDERICK W. LYON,
Attorneys for Defendant [35]

Affidavit of Service by Mail attached. [36]

[Endorsed]: Filed February 24, 1955.

[Title of District Court and Cause.]

CONCISE STATEMENT OF POINTS ON
APPEAL UNDER RULE (75a)

1. The Trial Court erred in holding that United States Letters Patent No. 2,602,441 described the invention of new and useful improvements in wall heaters fired with gaseous fuels and is valid as to each of claims 1, 2, 3 and 4 thereof.

2. The Trial Court erred in holding that the defendant, The Coleman Company, Inc., intentionally has infringed the patent in suit by making, using and selling gas-burning wall heaters designated as defendant's Models Nos. 64, 67, 68 and 69.

3. The Trial Court erred in holding that Models Nos. 64, 67, 68 and 69 of the defendant embodied the invention of Patent [47] No. 2,602,441.

4. The Trial Court erred in holding that any device manufactured and sold by defendant, The Coleman Company, Inc., infringed the patent in suit.

5. The Trial Court erred in holding that the plaintiff is entitled to damages from the defendant sustained as the proximate result of defendant's infringement of any of Claims 1, 2, 3 and 4 of the patent in suit and that said damages be assessed pursuant to provisions of 35 U.S.C. sec. 284.

6. The Trial Court erred in ordering the defendant, its officers, agents, servants and those persons, companies or corporations in active concert or participation with them be thereby enjoined from making or causing to be made, or offered or threatening to make, or using or causing to be used, or offered or threatening to use or sell, or cause to be sold, or offered or threatening to sell, or contributing to the making, using or selling of the combination patented in and by each of claims 1, 2, 3 and 4 of the said Letters Patent No. 2,602,441 for the remainder of the term thereof.

7. The Trial Court erred in ordering that defendant, its officers, agents, servants, employees and those persons, companies or corporations in active concert or participation with them be and each of them is hereby enjoined from making or causing to be made, or offering or threatening to make, or using or causing to be used, or offering or threatening to use, or selling, or offering, or threatening to sell, or contributing to the making, using or selling of any wall heaters of the identical construction as defendant's wall heaters models 64, 67, 68 and 69, or any wall [48] heaters of substantially the same construction as defendant's wall heaters models 64,

67, 68 and 69 for the remainder of the term of said Letters Patent No. 2,602,441.

8. The Trial Court erred in ordering that this cause be referred to a Master pro hac vice, pursuant to Rule 53 of the Federal Rules of Civil Procedure, with directions to hear and determine an accounting as to plaintiff's damages and particularly plaintiff's damages with respect to defendant's manufacture, use and sale of defendant's wall heaters Nos. 64, 67, 68 and 69 equipped both with the 4-foot economizer and the 3-foot economizer, to be assessed pursuant to 35 U.S.C. sec. 284, to hear all relevant evidence on the issue of damages to be assessed and to report his findings of fact and conclusions of law with respect to the assessment of such damages in accordance with the provisions of 35 U.S.C. sec. 284.

9. The Trial Court erred in holding that plaintiff be awarded costs of suit in the sum of \$690.74.

10. The Trial Court erred in ordering that for a long time prior to the invention of the patent in suit, the thermal input of wall heaters could not be increased substantially without excessively heating combustible walls in which the heaters were installed, and that these hot walls were encountered in both the lower and upper portions of the wall between floor and ceiling adjacent the heater; that wall heater manufacturers have no control of the height of flues attached to their heaters in buildings and that prior to the invention of the patent in suit, there was inadequate control of the amount of warm air sucked from the room into the

flue from the draft hood and thus lost, with consequent decrease in heating efficiency; that the combination of elements described and claimed [49] in the patent in this suit cooperate to permit the thermal input of wall heaters to be increased without bringing about excessive wall temperatures at any point in the wall from floor to ceiling, and without reducing thermal efficiency of the wall heaters; and that the invention of the patent in suit has simultaneously solved the hot wall problem from floor to ceiling, increased thermal efficiency while permitting increased heat input, improved air circulation within the room, minimized heat loss due to warm air being sucked out of the room into the flue through the draft hood, and has rendered this heat loss substantially independent of flue height.

11. The Trial Court erred in holding that it required the exercise of inventive faculty to invent the combination defined by each of claims 1, 2, 3 and 4 of Letters Patent No. 2,602,441 in suit.

12. The Trial Court erred in holding that the combination of elements defined by each of claims 1, 2, 3 and 4 of Letters Patent No. 2,602,441 in suit cooperate to produce a new and beneficial result unattained before the invention of said patent was made, and that the results of such combination exceed the accumulation of the results of the individual elements of such combination.

13. The Trial Court erred in holding that John H. Hollingsworth and Karl L. Bedell, who are named as the inventors in the patent in suit, are the original and first inventors of certain new and use-

ful improvements in gas-burning wall heaters as claimed in each of claims 1, 2, 3, and 4 of the patent in suit.

14. The Trial Court erred in holding that Letters Patent No. 2,602,441 in suit is valid as to each of claims 1, 2, 3 and 4 thereof. [50]

15. The Trial Court erred in holding that the disclosure contained in Letters Patent No. 2,602,441 in suit is sufficient to enable a person skilled in the art to which the patent pertains to accomplish the objects of the invention.

16. The Trial Court erred in holding that Letters Patent No. 2,602,441 in suit is not ambiguous, incomplete, or insufficient, and that the description of the invention filed in the Patent Office was not made to contain less than the whole truth relative to the alleged invention; that the description of the invention filed in the Patent Office was not made to contain more than was necessary to produce the desired results; that the description of the invention was not designed to mislead the public as to the character of the invention.

17. The Trial Court erred in holding that each of claims 1, 2, 3 and 4 of Letters Patent No. 2,602,441 in suit is supported by the specification in said patent and, construed in the light of such specification, each of such claims particularly points out and distinctly claims the parts, improvements or combination of the invention; that the inventions claimed in each of claims 1, 2, 3 and 4 of said patent is not different from any inventions indicated, sug-

gested, described or claimed in the application therefor.

18. The Trial Court erred in holding that defendant introduced in evidence 14 prior art patents (Exhibits C through P) for the purpose of showing that the invention of the patent in suit was anticipated by the prior art; that said prior art patents, taken either singly or in combination, do not describe a gas burning wall heater wherein the principle, or mode of operation, or results [51] attained are equivalent to those of the patent in suit; that said prior arts patents, taken either singly or in combination, do not describe or suggest the group of cooperative elements described and claimed by the patent in suit; that of such exhibits, Exhibits C, D, E, F and G were cited by the Patent Office in the file wrapper of the patent in suit; that neither the remainder of said exhibits (Exhibits H through P) nor any other prior art relied upon by defendant more nearly discloses the invention of the patent in suit than do the references cited by the Patent Office in the file wrapper of said patent; that none of the prior art references, taken either singly or in combination, anticipate the invention of the patent in suit.

19. That the Trial Court erred in holding that the invention of the patent in suit represents a new and useful improvement in wall heaters fired with gaseous fuel and has provided a substantial contribution to the art.

20. That the Trial Court erred in holding that the proceedings in the Patent Office had as to the

application for the patent in suit, serial No. 222,500 (defendant's Exhibit A) or the file wrapper of the abandoned application, serial No. 157,670 filed April 24, 1950, (defendant's Exhibit B), do not limit the scope of claims 1, 2, 3 and 4 of the patent in suit; that plaintiff made no admissions in either of said file wrappers which would restrict or limit the scope of claims 1, 2, 3 and 4.

21. The Trial Court erred in holding that defendant's wall heaters models No. 64, 67, 68 and 69 equipped with defendant's 4-foot economizer, exemplified by Exhibits 24 through 24E, contain all the elements of each of claims 1, 2, 3 and 4 of Letters Patent No. 2,602,441 in suit. [52]

22. The Trial Court erred in holding that defendant's wall heaters models 64, 67, 68 and 69 equipped with defendant's 3-foot economizer, exemplified by Exhibits 25 through 25d, contain all the elements of each of claims 1, 2, 3 and 4 of the patent in suit.

23. The Trial Court erred in holding that defendant undertook the manufacture and sale of its wall heaters models Nos. 64, 67, 68 and 69 after defendant's New Products Committee and its design engineers had seen an exemplar of plaintiff's device which embodied the inventions of the patent in suit.

24. The Trial Court erred in holding that defendant's wall heaters models Nos. 64, 67, 68 and 69 manufactured and sold by defendant prior to November 2, 1953, employed defendant's 4-foot economizer which was adapted to receive air flowing up-

ward outside the first box and inside the wall as taught and claimed by the patent in suit.

25. The Trial Court erred in holding that after the plaintiff had sent notice of infringement of the patent in suit to the defendant represented to the plaintiff that defendant was redesigning defendant's wall heaters models Nos. 64, 67, 68 and 69 to prevent the flow of air upward into the second box or economizer from the conduit provided outside the first box and inside the wall, but that defendant's redesigned wall heaters models Nos. 64, 67, 68 and 69 which were manufactured and sold by the defendant on or after November 2, 1953, and which employed defendant's 3-foot economizer did not prevent such flow of air.

26. The Trial Court erred in holding that defendant's wall [53] heaters models Nos. 64, 67, 68 and 69 manufactured and sold by defendant on or after November 2, 1953, employed defendant's so-called 3-foot economizer which was adapted to receive air flowing upward outside the first box and inside the wall as taught and claimed by the patent in suit.

27. The Trial Court erred in holding that the upper radiator in all defendant's wall heaters models Nos. 64, 67, 68 and 69 is made substantially smaller in horizontal cross section than the first radiator in such heaters in order to minimize loss of efficiency of the heater when warm air is drawn from the room through the draft hood to dilute the combustion products in the upper radiator.

28. The Trial Court erred in holding that all of

defendant's wall heaters models No. 64, 67, 68 and 69 infringe each of claims 1, 2, 3 and 4 of Letters Patent No. 2,602,441 in suit.

29. The Trial Court erred in holding that the inlet grilles on the defendant's devices, designated as grilles 7 and 8 on Exhibit 24a, contribute some air to the flow of air through defendant's economizers, exemplified by Exhibits 24b and 25a; that at best, such grilles function merely as an addition to the structure and do not avoid infringement.

30. The Trial Court erred in holding that defendant's infringement of claims 1, 2, 3 and 4 of the patent in suit has been and is intentional, conscious and deliberate and that defendant threatens to continue to infringe said claims and will infringe said claims unless enjoined by this court.

31. The Trial Court erred in holding that all plaintiff's wall [54] heaters exemplified by Exhibits 20 through 20d and Exhibit 44 embody the inventions claimed in the patent in suit.

32. The Trial Court erred in holding that plaintiff's manufacture and sale of wall heaters exemplified by Exhibits 20 through 20d and Exhibit 44 has been commercially successful, and that defendant has had substantial commercial success in the manufacture and sale of its wall heaters models Nos. 64, 67, 68 and 69.

33. The Trial Court erred in holding that plaintiff has committed no acts which prevent it from seeking or obtaining relief in a court of equity for infringement of the patent in suit.

34. The Trial Court erred in holding that plain-

tiff is entitled to damages sustained as a proximate result of defendant's infringement of each of claims 1, 2, 3 and 4 of the Letters Patent No. 2,602,441 in suit, to be assessed pursuant to the provisions of 35 U.S.C. sec. 284.

35. The Trial Court erred in holding that plaintiff is entitled to an accounting to ascertain pursuant to the provisions of 35 U.S.C. sec. 284 the amount of its damages sustained as a proximate result of defendant's infringement of each of claims 1, 2, 3 and 4 of said patent and in particular the amount of its damages sustained as a proximate result of defendant's manufacture, use and sale of defendant's wall heaters models Nos. 64, 67, 68 and 69 equipped both with defendant's 4-foot economizer and with defendant's 3-foot economizer.

36. The Trial Court erred in holding that plaintiff is entitled to an injunction as follows:

(a) That defendant, its officers, agents, servants, [55] employees and those persons, companies or corporations in active concert or participation with them be and each of them is hereby enjoined from making or causing to be made, or offering or threatening to make, from using or causing to be used, or offering or threatening to use, or selling or causing to be sold, or offering or threatening to sell, or contributing to the making, using or selling of the combination patented in and by each of claims 1, 2, 3 and 4 of the said Letters Patent No. 2,602,441 for the remainder of the term thereof;

(b) That defendant, its officers, agents, servants, employees and those persons, companies or corpora-

tions in active concert or participation with them be and each of them is hereby enjoined from making or causing to be made, or offering or threatening to make, from using or causing to be used, or offering or threatening to use, or selling, or offering, or threatening to sell, or contributing to the making, using or selling of any wall heaters of the identical construction as defendant's wall heaters models 64, 67, 68 and 69, or any wall heaters of substantially the same construction as defendant's wall heaters models 64, 67, 68 and 69 for the remainder of the term of said Letters Patent No. 2,602,441.

37. The Trial Court erred in not holding that the prior art patent to McLeod, No. 1,361,389 of 1920, anticipated and showed lack of invention of the patent in suit.

38. The Trial Court erred in not holding that the prior art patent to Wright, No. 2,453,954 of 1948, anticipated and showed lack of invention of the patent in suit.

39. The Trial Court erred in not holding that the prior art patent to Marble, No. 2,484,457 of 1949, anticipated and showed [56] lack of invention of the patent in suit.

40. The Trial Court erred in not holding that the defendant's heaters Nos. 64, 67, 68 and 69 were constructed in accordance with the teachings of the prior patent to Browell, No. 268,860 in 1882.

41. The Trial Court erred in not holding that the defendant's heaters Nos. 64, 67, 68 and 69 were constructed in accordance with the teachings of the prior patent to Snyder, No. 2,093,492 in 1937.

42. The Trial Court erred in not holding that the defendant's heaters Nos. 64, 67, 68 and 69 were constructed in accordance with the teachings of the prior patent to Hamilton, No. 311,313 in 1885.

43. The Trial Court erred in not holding that the Metalbestos construction exemplified in Exhibit T anticipated and showed lack of invention in the patent in suit.

44. The Trial Court erred in making no findings of fact as to what was new in the alleged combination of the patent in suit.

45. The Trial Court erred in not determining the difference between the combination of the patent in suit and those combinations disclosed in the prior art.

46. The Trial Court erred in not dismissing plaintiff's complaint.

47. The Trial Court erred in not dismissing plaintiff's [57] combined original and supplemental complaints.

48. The Trial Court erred in not granting defendant its necessary costs and disbursements.

Dated this 14th day of March, 1955.

LYON & LYON,

/s/ By FREDERICK W. LYON,

Attorneys for Defendant-Appellant

[Endorsed]: Filed March 14, 1955.

[Title of District Court and Cause.]

CERTIFICATE OF CLERK

I, Edmund L. Smith, Clerk of the United States District Court for the Southern District of California, do hereby certify that the foregoing pages numbered 1 to 61 inclusive, contain the original

Complaint;

Answer;

First Supplemental Complaint;

Answer to First Supplemental Complaint;

Order for Findings of Fact, Conclusions of Law and Interlocutory Judgment;

Findings of Fact and Conclusions of Law;

Interlocutory Judgment;

Notice of Appeal;

Bond on Stay of Injunction;

Defendant-Appellant's Designation of Portions of Record on Appeal Pursuant to Rule 75;

Concise Statement of Points on Appeal under Rule (75a);

Plaintiff's Designation of Additional Portions of Record on Appeal; which, together with six volumes of Reporter's Transcript of Proceedings on trial; and the original Plaintiff's Exhibits 1 to 8 inc., 10 to 47 inc.; and the original Defendant's Exhibits A, B, C, Q to Z inc., AA to AR inc.; all in said cause, constitute the transcript of record on appeal to the United States Court of Appeals for the Ninth Circuit.

I further certify that my fees for preparing and

certifying the foregoing record amount to \$2.00, which sum has been paid by appellants.

Witness my hand and the seal of said District Court, this 1 day of April, 1955.

[Seal]

EDMUND L. SMITH,
Clerk

/s/ By THEODORE HOCKE,
Chief Deputy

In the United States District Court, Southern District of California, Central Division

No. 15886-WM

HOLLY MANUFACTURING COMPANY, a corporation of California, Plaintiff,

vs.

THE COLEMAN COMPANY, INC., a corporation of Kansas, Defendant.

TRANSCRIPT OF PROCEEDINGS

Los Angeles, Calif., Tuesday, Jan. 11, 1955

Honorable William C. Mathes, Judge presiding.

Appearances: For the Plaintiff, James B. Christie, and Richard B. Hoegh, 595 East Colorado St., Pasadena, Calif. For the Defendant: Lyon & Lyon, by Frederick W. Lyon, 811 W. Seventh St., Los Angeles, Calif. * * * * * [1*]

* Page numbers appearing at top of page of original Reporter's Transcript of Record.

The Court: Very well.

The soft copy here will be substituted as Plaintiff's Exhibit 1 in evidence. That is the patent in suit, is it?

Mr. Christie: That is correct. [13]

The Court: The clerk will return the original.

The Clerk: Is this admitted in evidence, your Honor?

The Court: In evidence.

(The document referred to was marked Plaintiff's Exhibit 1, and was received in evidence.)

[See Book of Exhibits.]

Mr. Christie: As Plaintiff's Exhibit 2, I would like to offer the assignment from John H. Hollingsworth and Karl Bedell to the Holly Manufacturing Company. I have shown the original to Mr. Lyon and he has no objection to putting into evidence as Plaintiff's Exhibit 2 a photostat of that assignment.

Mr. Lyon: No objection, your Honor.

The Court: It is stipulated the document is genuine and in all respects what it purports to be, and it was executed on or about the date it bears?

Mr. Lyon: Yes, your Honor, I believe this document is genuine. If I could prove differently I would like an exception to it, but I can't, so——

The Court: Very well, the assignment is received in evidence as Plaintiff's Exhibit 2.

(The document referred to was marked Plaintiff's Exhibit 2, and was received in evidence.)

Mr. Christie: As Plaintiff's Exhibit 3 I would like to offer in evidence a certified abstract of title

of the patent by the Patent Office of the Department of Commerce of the [14] United States.

Again, I have shown the original to Mr. Lyon and I believe that he has no objection to marking a photostatic copy in evidence.

Mr. Lyon: No objection to the copy or the offer.

The Court: It is stipulated the document is genuine and in all respects what it purports to be?

Mr. Lyon: Yes, your Honor.

The Court: The abstract, a copy will be received in evidence as Plaintiff's Exhibit 3.

(The document referred to was marked Plaintiff's Exhibit 3, and was received in evidence.)

Mr. Christie: I would like to call your Honor's attention to the fact that defendant on page 2 of the pretrial statement has stipulated, paragraph 2, that plaintiff is the owner of the United States Letters Patent No. 2,602,441, which is the patent in suit.

* * * * * [15]

The Court: Very well. The Request for Admissions will be Plaintiff's Exhibit 17. Is that right, Mr. Clerk? [18]

The Clerk: Yes, your Honor.

The Court: It will be received in evidence.

(The document referred to was received in evidence and marked as Plaintiff's Exhibit No. 17.)

The Court: Now, do you offer Defendant's Admissions and Denials in Response to Plaintiff's Request for Admissions?

Mr. Hoegh: Yes, your Honor.

The Court: Any objection?

Mr. Lyon: No objection, your Honor.

The Court: They will be received. That was a document filed December 17, 1954. It will be received as Plaintiff's Exhibit 18 in evidence.

(The document referred to was received in evidence and marked as Plaintiff's Exhibit No. 18.)

[See page 519.]

* * * * * [19]

Mr. Lyon: I want to check the numbers.

As Exhibit S I will offer the entire stipulation and pretrial statement.

The Court: Is there any objection?

If there is no objection the pretrial statement entitled "Pretrial Statement," which appears to be a pretrial stipulation, is received in evidence as Defendant's Exhibit S.

(The document referred to was marked Defendant's Exhibit S, and was received in evidence.)

[See page 622.]

* * * * * [29]

Mr. Hoegh: We will offer it now, your Honor, as Plaintiff's Exhibit 19.

The Court: Is there objection?

Mr. Lyon: I would like to know just what is offered. I didn't quite follow it.

The Court: Stipulation and order signed today with respect to interrogatories 5 and 6.

Mr. Lyon: I have no objection. [33]

The Court: Received in evidence as Plaintiff's

Exhibit 19. It hasn't been filed yet, Mr. Clerk, this last-mentioned document.

Mr. Lyon: It needed the court's approval, your Honor. That is why it hadn't been filed.

The Court: I signed an order on it at the opening this morning.

(The document referred to was marked Plaintiff's Exhibit 19, and was received in evidence.)

[See page 525.]

* * * * * [34]

JOHN H. HOLLINGSWORTH,
called as a witness by and on behalf of the plaintiff, having been first duly sworn, was examined and testified as follows:

The Clerk: State your name, please.

The Witness: John H. Hollingsworth.

Direct Examination

Q. (By Mr. Christie): Give your full name, age, residence, and occupation.

A. My name is John H. Hollingsworth, I am 37 years of age, I am a development engineer, I reside at 1976 North Roosevelt Avenue, Altadena, California.

Q. Are you the John H. Hollingsworth named as one of the co-inventors in the patent in suit, No. 2,602,441?

A. Yes, I am.

Q. Who is your employer, Mr. Hollingsworth?

A. The Holly Manufacturing Company in Pasadena.

Q. How long have you been employed by Holly?

(Testimony of John H. Hollingsworth.)

A. Nearly nine years.

Q. Will you tell me what you have done in the course of your employment with Holly?

A. During the entire time that I have been with the Holly Manufacturing Company I have been product development engineer. I have been responsible for the design of new products and the further development of existing products.

Q. What industrial experience did you have, if any, before you came to Holly?

A. During the war I worked for Douglas Aircraft Company as a design engineer. My work was concerned with heating and ventilating and air conditioning of aircraft.

After leaving Douglas I worked for the Rheem Manufacturing Company in their research laboratories on reverse cycling air conditioning projects.

Q. What has been your education?

A. I have a Bachelor's degree in petroleum engineering from the University of Southern California.

Q. When did you get that?

A. 1942.

Q. Are you a member of any industrial groups connected with gas heating appliances?

A. Yes, I am. I am associated with the American Gas Association through industry committees. Also with the Gas Appliance Manufacturers Association.

Q. Is the American Gas Association sometimes called the A.G.A.?

A. That is correct.

(Testimony of John H. Hollingsworth.)

Q. Will you describe what the A.G.A. is and what it does?

A. The A.G.A. is a national association supported by [39] and working for the gas industry. It performs many of the functions that you would ordinarily expect of an industry association. It is very active. Probably the most important function with which we might be concerned has to do with the A.G.A. testing laboratories.

This is a nationally recognized testing agency which certifies the approval of gas appliances as to their compliance with minimum standards which have been established by the industry for safety and performance and durability.

The A.G.A. seal of approval, which is granted to those appliances that successfully meet these minimum test standards, are quite well recognized nationally by the Federal Government and by local governments, and by codes and ordinances authorities to the extent that it would be virtually impossible for a manufacturer of gas appliances to manufacture and sell successfully an appliance without first having obtained the seal of approval by successfully complying with the tests.

So that as a design engineer I must look to the test standards, requirements established by the American Gas Association as my basic design specifications for any gas appliance that I might develop.

Q. What connection have you individually had with the A.G.A., if any?

A. I am vice-chairman of the Approval Re-

(Testimony of John H. Hollingsworth.)

quirements [40] Panel for Vented Recessed Heaters, which is the formal identification for the wall heaters that we are discussing at this time.

That committee lays most of the groundwork for revisions in existing requirements and development of new requirements, approval requirements relating to vented recessed heaters.

I am also a member of the Technical Advisory Group for Heating and Air-conditioning Research, which is attached to the American Gas Association. That committee acts in an advisory capacity in the development of factual research information for the industry. Items, projects, such as basic heat transfer work, or more specifically a particular project for which I am technical advisor, is one that relates to the problems connected with venting appliances, such as these under discussion here today.

Q. You mentioned the Gas Appliance Manufacturers Association; will you describe what this association is?

A. As the name implies, it is a national association of gas appliance manufacturers. It works and is associated very closely with the American Gas Association, but is a more specific association in that it includes only gas appliance manufacturer members, whereas the American Gas Association also includes utility members.

Q. Is this organization sometimes known as GAMA? A. Correct. [41]

Q. What is your personal connection with GAMA, if any?

(Testimony of John H. Hollingsworth.)

A. I am chairman of the Codes and Ordinances Committee of the floor and wall furnace division of GAMA.

Mr. Christie: Your Honor, I am about to ask Mr. Hollingsworth to discuss a plaintiff's heater, which we say is constructed in accordance with the patent in suit. Would it be convenient to have him step down and identify the several parts for you, or do you want him to remain on the stand?

The Court: I think it would be convenient to have him step down and take the device and identify the various parts.

Has the plaintiff's device been given an exhibit number?

Mr. Christie: I am about to offer it, sir, for identification.

The Court: What exhibit number is this device now?

Mr. Christie: This will be Plaintiff's Exhibit No. 20, your Honor. That does not have an exhibit number.

The Court: Exhibit 20 for identification.

Mr. Lyon: What part is 20?

Mr. Christie: The entire exhibit.

Mr. Lyon: I think we had better number the parts separately.

The Court: The large device there, I suppose that is the hull of the heater, or the shell of it? [42]

Mr. Christie: That is the lower box, sir.

The Court: That will be Exhibit 20 for identification.

(Testimony of John H. Hollingsworth.)

(The device referred to was marked Plaintiff's Exhibit 20, for identification.)

The Court: And what other pieces are there?

Mr. Lyon: What they call their secondary heater. Let's call that 20-B.

The Court: 20-A, would it not be?

Mr. Lyon: 20-A.

(The device referred to was marked Plaintiff's Exhibit 20-A, for identification.)

The Court: What next?

The Witness: Possibly the panel.

Mr. Christie: The panel which appears on the front of the first or large one should be 20-B.

Mr. Lyon: Where is that?

Mr. Christie: This right here (indicating).

Mr. Lyon: Is that removable now?

Mr. Christie: That is removable now.

The Court: You call it a panel?

Mr. Christie: We call it a panel, sir.

The Court: It will be Exhibit 20-B for identification.

(The device referred to was marked Plaintiff's Exhibit 20-B, for identification.)

The Court: And is there another piece there?

Mr. Christie: There is a top grille on the panel which we will refer to as Plaintiff's Exhibit 20-C, for identification.

The Court: It will be so marked.

(The article referred to was marked Plaintiff's Exhibit 20-C, for identification.)

Mr. Christie: And an upper grille which be-

(Testimony of John H. Hollingsworth.)

longs with the secondary heat exchanger or upper box, which we would like to have marked as 20-D for identification.

The Court: It will be so marked.

(The article referred to was marked Plaintiff's Exhibit 20-D, for identification.)

Mr. Lyon: We have no objection to Exhibits 20 through 20-D going into evidence as exemplars of a machine manufactured by plaintiff.

The Court: It is so stipulated?

Mr. Christie: So stipulated.

The Court: Very well, Exhibits 20, 20-A, 20-B, 20-C and 20-D, for identification, are received in evidence pursuant to stipulation.

(The exhibits referred to, marked Plaintiff's Exhibits 20, 20-A, 20-B, 20-C, and 20-D, for identification, were received in evidence.)

Mr. Christie: For the convenience of the witness I wonder if we might have tags actually placed on the exhibits [44] so that he knows which ones he is talking about.

The Court: The clerk will mark them.

Exhibit 20, what do you call it, again? I didn't get it in my notes.

Mr. Christie: This is the primary heat exchanger, your Honor, or the lower box with the lower radiator.

20-A, we call the secondary heat exchanger, or the upper box, and the upper radiator.

The Court: Is there a radiator there?

(Testimony of John H. Hollingsworth.)

Mr. Christie: Yes, this pipe radiates heat.

The Court: But there is no heating unit as such? There is a heating unit in the lower box?

Mr. Christie: There is a burner in the lower box, that is correct. There is no burner in the upper box.

The Court: I suppose strictly speaking anything that radiates heat would be correctly called a radiator, would it, Mr. Hollingsworth?

Mr. Hollingsworth: That is trade terminology, your Honor. [45]

The Court: And the portion of the device that actually supplies the heat would be called the burner? The Witness: Correct.

Q. (By Mr. Christie): Mr. Hollingsworth, do you recognize this as a device manufactured by the Holly Manufacturing Company? A. Yes, sir.

Q. Will you explain to the court what the several elements of the device are and how it is put together?

A. Yes. This first box, which has the first radiator which includes a combustion zone and the burner——

The Court: That is Exhibit 20.

The Witness: ——mounts in the wall between studs in a standard partition. It is recessed in the wall but projects out slightly past the plaster face of the wall. Above that mounted in the wall is this Exhibit 20-A, I believe, which is the secondary heat exchanger. That has a second radiator mounted in a jacket forming an annulus between the second

(Testimony of John H. Hollingsworth.)

radiator and the jacket walls. That is open on the bottom. It is closed on the top. That is, the annulus is closed. The radiator is open; adapted to receive a flue pipe for discharge of flue products out of the second radiator through the flue pipe.

The Court: The flue pipe would go through the roof, would it? [46]

The Witness: Correct. This is a plaster seal. I might mention, this is normally mounted in what we call in construction, which is before the walls are plastered, and located in place. And then the walls are plastered after this is in position. This is the only part of the appliance that goes in on the rough.

The Court: Now, you are referring to Exhibit 20-A?

The Witness: To Exhibit 20-A.

Mr. Christie: Would you refer, if you can, Mr. Hollingsworth, to the exhibit number, so that the record will be plain?

The Witness: Exhibit 20-A then has the annulus opening at the bottom that I just described, and a discharge opening higher up on the box side, which provides means for discharging air that would enter into the annulus.

The Court: That aperture there is to discharge air into the room, is it?

The Witness: Yes, your Honor. And that is located near the ceiling.

The Court: That would be about half way up Exhibit 20-A, is that it?

(Testimony of John H. Hollingsworth.)

The Witness: Correct.

The Court: Now, does that annulus fit over a like annulus at the top of Exhibit 20 and thus, in effect, form a flue pipe? [47]

The Witness: If I might, your Honor, first—if I could describe Exhibit 20, then I think I might be able to demonstrate that.

Exhibit 20 has a box which we refer to in the patent as the first box. It has mounted in that first box a first radiator. It has a burner mounted in the bottom of the first radiator. Gases are burned together with air in the bottom of the first radiator. The bottom of the first radiator can open to receive air for combustion. The combustion process takes place in the lower portion of the first radiator. The flue products then move up through the first radiator and are discharged through these tubes into what we term the draft hood, which is a part of Exhibit 20. They then are discharged into this outlet collar—that is, the flue products are discharged into this outlet collar, which is adapted to receive the radiator of Exhibit 20-A, the lower portion——

The Court: Which you referred to as the annulus—not the annulus, but the radiator itself.

The Witness: The radiator itself.

The Court: I am sorry.

The Witness: So that this then is approximately in that position as it is mounted in the wall (indicating).

This portion of the upper box, Exhibit 20-A, is normally referred to as a header plate and it pro-

(Testimony of John H. Hollingsworth.)

vides support for the second box to the studs, and also forms a seal, a fire stop [48] if you please, to effectively seal off the lower box from the stud space that is enclosing the second box, or Exhibit 20-A.

The Court: What you have just described, in effect, constitutes a base for Exhibit 20-A, is that it?

The Witness: Correct. Air movement through the heater is generally in this manner:

Well, first, I might go back to the panel which—what is the number of that exhibit?

The Court: The panel I believe is Exhibit 20-B.

The Witness: 20-B then. This panel mounts then over the face of the lower box, Exhibit 20, flush with the wall. It provides a finish trim which is of pleasing appearance. It provides, also, an aperture at the base of the panel whereby air may enter in the bottom into the first box and around the first box.

Mr. Christie: Does this air come in from the floor level?

The Witness: Yes.

The Court: And from the room itself?

The Witness: And from the room itself. This is adapted to be mounted approximately three inches off the floor to provide an opening at the base of the panel to allow the air that is circulated through the heater to be drawn from the floor level, which is the preferable place for drawing the air. The air then circulates, a portion of it, up through and [49] around—pardon me. Up around the first radiator,

(Testimony of John H. Hollingsworth.)

which provides heat transfer; it is discharged from this grille——

Mr. Christie: What is the exhibit number on the grille?

The Court: Is that the upper grille or just what is called the grille?

The Witness: The upper grille, yes.

Mr. Christie: 20-C.

Mr. Lyon: That is the lower grille. This is the upper grille here (indicating).

The Court: The smaller grille is the upper grille, is it not?

The Witness: If you want to term it that way.

The Court: I believe that is the way it is identified.

The Witness: Then this would be the lower grille (indicating).

The Court: Exhibit 20-B.

Mr. Christie: 20-C.

The Court: 20-C. I am sorry.

The Witness: The lower grille then is 20-C.

The Court: Exhibit 20-C.

The Witness: The air moves up then around the first radiator, conducting the heat from the first radiator, and then is discharged out through the lower portion of the grille, 20-C.

Air also moves around the back of the box, between the [50] box and the wall. Provisions are supplied on the back of the box and on the sides of the box to space the box from the studs on the

(Testimony of John H. Hollingsworth.)

side and wallboard on the back to provide the conduit of the sides and back of the box.

The Court: What is the source of that air?

The Witness: The source of that air is also from the floor level at the same instant location.

The Court: And from the room?

The Witness: And from the room, yes, sir. That air then moves up around the back of the box, being heated. It comes over the top of the box and enters the annulus of the secondary heat exchanger.

The Court: Exhibit?

The Witness: Exhibit 20-A. And it travels up through that annulus, being further heated because it is in contact with the second radiator, Exhibit 20-A; and then discharges from the upper grille, which covers the discharge outlet halfway up Exhibit 20-A.

Mr. Christie: You show the court how the upper grille goes on the secondary heat exchanger.

The Witness: That upper grille—being 20-D, I assume—that upper grille is attached with these screws in this fashion (indicating).

This collar or projection on Exhibit 20-A is what we term the secondary heat exchanger plaster ground. [51] This unit, being mounted in the wall before the wall covering is put in position, we must provide some means for indexing the opening to the plaster. This upper grille then provides the finish trim and cover for this aperture.

The Court: That aperture you just referred to

(Testimony of John H. Hollingsworth.)

normally would be very near the ceiling of the room?

The Witness: Normally it will be on the order of eight or ten inches below the ceiling; sufficiently below the ceiling in normal installations to reduce any tendency to discolor the ceiling by air moving across the ceiling.

The Court: That air is forced downward into the room? Is that the design?

The Witness: The air tends to be forced downward in to the room because the grille louvres are turned downward. The air discharged from this lower grille is substantially warmer than that discharged from the upper grille.

The Court: That warm heat rises? The warm air rises?

The Witness: Yes, sir, that is correct.

The Court: Well, would the air that comes out the upper grille, does it, being cooler, tend to fall into the room?

The Witness: We contend, sir, that it helps to create better conditions within the living space because it blends with the warmer air that is discharging out the lower grille, and as it rises, tends to make a more uniform temperature [52] condition toward the ceiling.

The Court: All right.

Q. (By Mr. Christie): Mr. Hollingsworth, I show you a large diagram—

Mr. Christie: I would like to have the clerk

(Testimony of John H. Hollingsworth.)

mark this for the purposes of identification as Plaintiff's Exhibit 21.

The Court: It may be so marked.

(The exhibit referred to was marked Plaintiff's Exhibit No. 21 for identification.)

Q. (By Mr. Christie): I call your attention to the diagram on the left-hand side of the page and ask you if you will explain what that diagram shows.

A. This diagram is a cross-section——

Mr. Christie: I think if you could show it to his Honor, it would be advantageous.

The Witness: This diagram is a cross-section of the heater that we have just been discussing, our Holly No. 35 wall heater. It shows the heater mounted in a wall, and also has colored arrows depicting the air movement and gas movement through the appliance.

The Court: The blue arrows represent the air, is that it; and the red arrows represent the gas?

The Witness: The only arrows that represent gas would be the red arrows.

I am speaking of gas in the terms of gas that we would [53] burn in the appliance; air being a gas—differentiating from it in this respect. The red arrows would indicate the flow of the gas-air mixtures, products of combustion from the burner which is depicted by this cross-section. Those flue products travel upward then through the first radiator, through the tubes, through the draft hood——

(Testimony of John H. Hollingsworth.)

Mr. Christie: Perhaps it would be better for the record, Mr. Hollingsworth, if you would identify on the drawing, mark the drawing with the same exhibit numbers that you have used in connection with the physical exhibits.

The Witness: All right. This would be the panel which——

Mr. Christie: I believe it is 20-B.

The Clerk: 20-B, the panel.

The Court: You are drawing lead lines and putting that designation?

The Witness: Yes.

Mr. Lyon: Is that in black pencil that he is doing that?

The Witness: In ink.

The second arrow would point out the first box assembly. I believe it is Exhibit 20.

This arrow would denote the lower grille, Exhibit——

Mr. Christie: 20-C, I believe.

The Clerk: 20-C, the lower grille.

The Witness: ——20-C. (Indicating.) [54]

This arrow would depict the location of the secondary heat exchanger, Exhibit 20-A, I believe.

The Clerk: 20-A.

The Witness: 20-A.

This arrow would depict the upper grille, 20-D (indicating).

The Court: Each time you have placed an arrow—each time you have mentioned “this arrow,” you have drawn an arrow?

(Testimony of John H. Hollingsworth.)

The Witness: I have drawn an arrow leading to the exhibit that I am pointing out.

The Court: You have drawn it on Exhibit 21 for identification, and you have placed the verbal designation and the exhibit number which you have stated in your testimony in each instance?

The Witness: Yes.

Q. (By Mr. Christie): Mr. Hollingsworth, with reference to the diagram that you have just investigated, will you tell me whether or not the device that it illustrates contains a first box adapted to be mounted in a wall of a room to extend upward therein from a level near the floor of the room to a level part way to the ceiling? And, if so, will you mark that with a legend?

Mr. Lyon: Your Honor, that is objected to. Counsel is now trying to have this man interpret the claims of the patent in suit. I think that is the province of this court and [55] a thing for it to decide.

The Court: Is it in issue whether or not these various——

Mr. Christie: It is merely for purposes of identification, if your Honor please.

The Court: Just a moment. Is it in issue here that Exhibits 20, 20-A, 20-B, 20-C and 20-D, assembled together, are manufactured in accordance with the claims of the patent?

Mr. Lyon: It definitely is, sir. I do not admit that. And I have good reasons for it.

The Court: Well, it would be a matter of argument. I will hear the expert. But his testimony with

(Testimony of John H. Hollingsworth.)

respect to conclusions, that would be the same——

Mr. Christie: I will ask it then as——

Mr. Lyon: I will object further on the ground it was a leading question.

The Court: Well, on that latter ground, overruled.

Mr. Christie: Do you want me to rephrase the question, your Honor?

The Court: I don't believe it will save us time to go into that. You could make the same argument—unless you think that it's a technical matter that Mr. Hollingsworth can explain better than you can.

Mr. Christie: Your Honor, my whole purpose in going through this is to explain through Mr. Hollingsworth, who is completely familiar with the heater, because he invented it, [56] how it is put together and how it works.

The Court: Well, he may say that. But when you read portions of the claims of the patent in suit to him and ask him whether or not the device, plaintiff's device is that, and he expresses a conclusion which the court is called upon to make——

Mr. Christie: Mr. Hollingsworth, will you go through that diagram and mark on it, and explain to the court if you will, each element which it contains, including the physical structure in which the furnace is mounted?

The Court: Well, that is something he could mark during the recess, isn't it?

Mr. Christie: I thought, your Honor, if you

(Testimony of John H. Hollingsworth.)

could actually see it as he did it, it might be educational.

The Court: Very well. Proceed, Mr. Hollingsworth. You don't need to make any statement with respect to it. You merely want him, without saying anything at this time, to mark it, is that correct?

Mr. Christie: I should like to have him say what it is he is marking so the record will show it, too.

The Court: Very well. You may mark on Exhibit 21 for identification, Mr. Hollingsworth, and you may describe what you are doing at the time or after you have completed it.

The Witness: I would first mark the wall structure that the heater is mounted in, denoting it with an arrow pointing [57] to it, and it will have designation "A."

I would secondly point to——

The Court: As long as you have plenty of room, wouldn't it be helpful to have you write "wall structure" there instead of "A"?

The Witness: All right. Instead of "A," I will change that to "wall structure."

Referring to the first box assembly, Exhibit 20, I would mark the first radiator within the box; I would mark the baffle between the shell of the first box and the wall.

The Court: What is a baffle, precisely?

The Witness: A baffle is a heat shield, in its function.

The Court: A piece of metal?

The Witness: A piece of metal which protects

(Testimony of John H. Hollingsworth.)

the radiant temperature—protects the wall from the radiant temperatures and provides an air space between its surface and adjacent surfaces.

Mr. Christie: Would you mark that air passage?

The Witness: Yes, sir.

The Court: Would it be correct to say that a baffle is a metal insulator?

The Witness: Yes, sir. I will then mark the draft hood, which is the device that I described on Exhibit 20 as being between the first radiator and the second radiator (indicating). [58]

Then mark the second radiator, the second box, which is the jacket around the second radiator.

Mark the burner, which is the means provided for burning fuel.

I would mark the air passage between the second radiator and the second box.

I think I would mark, also, what the colors of the arrows might depict to describe the movement through the appliance.

The blue arrows depict air moving upward around—rather than around, between the first box and the wall, and the air moving through the secondary heat exchanger annulus, and out the upper grille.

Q. (By Mr. Christie): Point out the course of those blue arrows to the judge, Mr. Hollingsworth.

A. Yes. The blue arrows start here (indicating)——

The Court: The bottom of the drawing?

The Witness: Yes, at the bottom of the drawing, depicting air that has been drawn in at the

(Testimony of John H. Hollingsworth.)

base of the appliance, but from within the room, upward around the first box between the first box and the wall, up to the top of the first box and into the annulus of the second radiator, through the opening—excuse me—into the annulus of the secondary heat exchanger, through the opening provided at the base of the secondary heat exchanger, upward through that annulus and out of the upper grille into the room. [59]

The red arrows show the gas-air mixture burned in the first radiator moving up through the first radiator into and through the draft hood and second radiator.

The Court: The gas as indicated by the red arrows is ultimately conducted through the flue?

The Witness: Yes. I would add, as a continuation of that, through the draft hood and second radiator and into the flue.

The yellow arrows would depict the air movement—circulating warm air movement, would be better, around the first radiator and in the first box, discharged into the room through the lower grille.

The Court: And the red arrow goes out the flue?

The Witness: Correct.

The Court: The yellow arrow is heated and ejected into the room through the lower grille, and the blue arrow air is ejected into the room through the upper grille, is that it?

The Witness: Correct. In a sense they are all continuously recirculated within the room, because both the air depicted by the yellow arrows and the

(Testimony of John H. Hollingsworth.)

air depicted by the blue arrows are drawn from near the floor level within the room and discharged up higher in the room and recirculated in that manner.

Q. (By Mr. Christie): Mr. Hollingsworth, was this drawing that you just testified to, Plaintiff's Exhibit 21, [60] prepared under your direction or control? A. Yes, it was.

The Court: Exhibit 21?

Mr. Christie: Right.

What would you say with respect to the scale of the drawing?

The Witness: The scale is within the normal accuracy of layout work as done by a layout draftsman. The scale is quite accurate.

Q. (By Mr. Christie): What is the scale?

A. The scale is one-quarter to one.

Q. So that the actual installation, if we took the physical exhibits, would be four times as tall as the drawing, is that correct?

A. Correct.

Q. Mr. Hollingsworth, have you investigated the horizontal cross-section of the lower radiator and the upper radiator in the Holly furnace?

A. Yes, I have.

Q. Will you explain what you did?

A. I did two things. I calculated the cross-sectional area of the second radiator, and it being uniform in cross-section I considered that accurate. I calculated the average cross-section of the lower

(Testimony of John H. Hollingsworth.)

radiator. That not being uniform, I could not consider as being other than approximate. [61]

Further than that, I had under my direction—I had the first radiator filled with water up to the point of the tubes that discharge into the draft hood, which were sealed with wax, and by calculating from the weight and volume of the water and the height of the radiator I accurately determined or had accurately determined the cross-sectional area of the first radiator.

The Court: By the first radiator you mean Exhibit 20?

The Witness: Exhibit 20.

The Court: And by the second radiator you mean Exhibit 20-A?

The Witness: Well, it is a part of Exhibit 20-A.

The Court: Yes, but when you refer to that object you are referring to the object which is marked here as——

The Witness: As Exhibit 20-A.

Mr. Christie: To avoid confusion, your Honor, the radiator is only part of 20—the lower radiator is only part of 20, it is inside 20 as a whole. And the radiator in 20-A is also only part of the whole. It is the inside part.

Is that correct, Mr. Hollingsworth?

The Witness: That is correct.

Mr. Christie: I didn't mean to testify.

Mr. Hollingsworth, I hand you a single sheet here and ask you to identify it and tell me what it is.

(Testimony of John H. Hollingsworth.)

I would like to have it marked as Plaintiff's Exhibit 21 for identification.

The Clerk: The last one was 21.

Mr. Christie: 22. I am sorry.

The Court: It will be so marked.

(The exhibit referred to was marked Plaintiff's Exhibit 22, for identification.)

The Witness: This is a comparison of the cross-sectional areas of the upper and lower radiators, the upper radiator being a part of Exhibit 20-A and the lower radiator being a part of Exhibit 20, I believe.

This indicates the volumes measured and the procedure used in measuring the cross-sectional area of the first and second radiators.

Q. (By Mr. Christie): What were your measurements, Mr. Hollingsworth?

A. The cross-sectional area of the upper radiator, part of Exhibit 20-A, was computed to be 7.093 square inches. The cross sectional area of the lower radiator, part of Exhibit 20, which was measured by filling the flue tubes with wax and then filling the rest of the radiator with water, and computing the cross-sectional area from that approach, the cross-sectional area was computed to be 26.04 square inches.

The Court: That would be a mean, would it not?

The Witness: That would be the average cross-sectional area.

The Court: 26——

The Witness: Point 04.

(Testimony of John H. Hollingsworth.)

The cross-sectional area of the first radiator, divided by the cross-sectional area of the second radiator, or 26.04, divided by 7.09, produces a ratio of 3.67, or, in other words, the average cross-sectional area of the first radiator is 3.67 times that of the second radiator.

Mr. Christie: I offer Plaintiff's Exhibits 21 and 22 in evidence.

Mr. Lyon: That is objected to unless they are restricted to the fact that they are illustrative of the witness' testimony and not proof of anything else.

The Court: I take it that is the purpose of them?

Mr. Christie: That is the purpose of them.

The Court: Received in evidence, Exhibits 21 and 22 for identification.

(The exhibits referred to, marked Plaintiff's Exhibits 21 and 22, for identification, were received in evidence.)

Mr. Christie: Mr. Clerk, the actual physical exhibits are in evidence now, are they not?

The Clerk: Yes, sir.

Q. (By Mr. Christie): Mr. Hollingsworth, I call your [64] attention to another drawing which I would like to have marked as Plaintiff's Exhibit 23 for identification.

(The exhibit referred to was marked Plaintiff's Exhibit 23, for identification.)

Q. (By Mr. Christie): Referring particularly to the drawing on the left, I ask you if you recognize it, and describe what it is.

(Testimony of John H. Hollingsworth.)

A. Yes, I recognize it. It is a full-scale drawing of that portion of the Holly Wall Heater in the area of the draft hood. It is a full-scale section drawing depicting a portion of that shown in quarter scale on Exhibit 21.

The Court: You are referring to an area where the lower heater, Exhibit 20, joins the upper heater Exhibit 20-A, is that correct?

The Witness: Yes, sir; and it depicts in detail the draft hood which is a portion of Exhibit 20 in detail, which is between the first radiator and the second radiator.

The Court: That is the figure to the left on Exhibit 23, for identification, which you just referred to?

The Witness: Yes.

Q. (By Mr. Christie): Mr. Hollingsworth, will you mark on Plaintiff's Exhibit 23 for identification the same legends and explain the gas flows, if you will, to his Honor?

A. The gas flows from the first radiator into the second radiator to be depicted by an arrow in this manner [65] (demonstrating).

Q. Is that a black arrow?

A. An arrow drawn with a pen in blue ink. I will legend those arrows "Gas Flow."

Some air is drawn into what is termed the relief opening of the draft hood.

Q. Mark the relief opening of the draft hood.

A. Room air in small quantities is drawn into the relief opening of the draft hood and mixes with

(Testimony of John H. Hollingsworth.)

the products of combustion which discharge from the draft hood into the second radiator, and then sent to the flue.

The Court: That would be, in terms of Exhibit 21, the red arrow gas, is that it?

The Witness: That is correct.

The air flow around the back of the heater is depicted by blue arrows, corresponding with those on Exhibit 21. The air moves upward between the back of the box and the wall, Exhibit 20 in the wall, up over the top of the first box and into the annulus formed by the second radiator and the jacket, which comprise Exhibit 20-A.

Q. (By Mr. Christie): Will you mark that blue arrow, please?

(Witness does as requested.)

Q. (By Mr. Christie): Tell the reporter what you have marked it. [66]

A. I am marking the blue arrow: "Air flowing upward around the first box and through the annulus provided in the second box, and then into the room through the upper grille."

Q. Mr. Hollingsworth you mentioned a draft hood; will you tell the court what a draft hood is and what its function is?

A. Yes. A draft hood is in a sense a safety device. It is essential to a gas-burning appliance that is vented. It acts as a pressure regulator or draft regulator neutralizer. It basically functions to do this: It maintains constant draft conditions or nearly constant draft conditions within the com-

(Testimony of John H. Hollingsworth.)

bustion zone of the appliance, irrespective of what the draft conditions might be in the vent above that appliance due to wind conditions or vent heights. It does that by having suitable baffling, or baffling within the draft hood arranged suitably, and a relief opening provided as part of the draft hood, so that strong draft action which would exist in the upper—in the vent, or any portion above the draft hood, could be relieved by dilution air being drawn in through the relief opening into the draft hood, and there would be little or no effect of that variation in draft on the combustion zone of the appliance. [67]

The Witness: For example, if the draft hood, or if the vents were plugged accidentally, without a relief opening being provided in the draft hood, the flame would soon become extinguished and produce a hazard. Or, if due to a sudden downdraft condition, a wind velocity were to come through the vent, rather than allow that to disturb the confines of the combustion area, the baffles are so arranged that wind velocity is directed out to the relief opening of the draft hood and would go with the products of combustion momentarily until conditions are stabilized again. Because we have no control over ventilator and draft action established by the vent, and because we must control the draft that exists within the combustion area so our gas-air mixture is held within reasonably close limits, we must provide some neutralizing device. That is the function of the draft hood.

(Testimony of John H. Hollingsworth.)

Mr. Christie: Your Honor, I propose to go through exactly the same procedure that we have with respect to the Holly heater with the two infringing models, or allegedly infringing models. Would it be convenient to have us put the legends on first? Or is this procedure satisfactory to you?

The Court: I think you might save time if you put the legends on. But you proceed in your own way. If the legends are put on during the recess——

Mr. Christie: It is a matter primarily for your preference, [68] your Honor. A great many of these points are, with respect to defendant's heaters, not contested. There are only two or three places in which there is a controversy.

Isn't that correct, Mr. Lyon?

And the great bulk of the elements in the claims are covered by the admissions now, leaving out the question as to whether or not they are all admitted.

The Court: If Mr. Hollingsworth would put the legends on during the recess, I think they would be largely self-explanatory. [69]

* * * * *

Q. Mr. Hollingsworth, I call your attention to a physical object on which I have my hand, and ask you to tell me what it is. [70]

A. That is the Coleman heater.

Q. Did you purchase it from the defendant in this action? A. Yes.

The Court: Has it been marked?

Mr. Christie: We would like to have it marked

(Testimony of John H. Hollingsworth.)
for identification as Plaintiff's Exhibit 24. I believe that is the next number.

The Court: It may be so marked.

(The exhibit referred to was marked Plaintiff's Exhibit 24, for identification.)

Mr. Christie: Will counsel stipulate that this is a Coleman heater, or shall we go into further identification?

Mr. Lyon: I will stipulate to it on condition that I may be allowed to examine it to see that there have been no alterations.

Mr. Christie: Certainly.

The Court: Subject to correction, you stipulate it is an accused device here?

Mr. Lyon: That is right. But I would like to inspect it.

The Court: It is a model what? What model is it?

Mr. Lyon: If your Honor please, if I might make a statement. All of these heaters are substantially the same for the lower units. That is a 67.

The Court: A Coleman model?

Mr. Lyon: This is a Coleman 67. It is used with both the three and four-foot economizer, your Honor. It is the same in both. There is no difference in the lower heater.

The Court: Very well. Do you offer it in evidence?

Mr. Christie: I offer it in evidence, your Honor.

The Court: I assume there is no objection?

(Testimony of John H. Hollingsworth.)

Mr. Lyon: Subject to my reservation to correct it.

The Court: Yes. Received in evidence. Exhibit 24, for identification, received in evidence.

(The exhibit referred to, marked Plaintiff's Exhibit 24, for identification, was received in evidence.)

Q. (By Mr. Christie): Mr. Hollingsworth, I next call your attention to this physical object on which I have my hand, and ask you to identify that if you know.

A. That is the panel or trim for the Coleman heater.

Q. The 67 heater?

A. Either of the models, I believe.

Mr. Christie: May we have the same stipulation with respect to that?

Mr. Lyon: I will make the same stipulation with respect to that, that this is——

The Court: Let's take one at a time. That shell or trim will be received in evidence as Exhibit 24-A?

Mr. Christie: The shell will be 24-A in evidence, your [72] Honor. I offer it.

The Court: All right.

Now, the next one, what stipulation do you offer with respect to that?

Mr. Lyon: The same as I did with respect to the shell.

Mr. Christie: Then I will offer them directly in evidence.

(Testimony of John H. Hollingsworth.)

The Court: Is it another model?

Mr. Lyon: No. This is——

Mr. Christie: This is the so-called——

Mr. Lyon: This is the cover to Exhibit 24.

The Court: I was trying to do too much. Exhibit 24——

Mr. Lyon: Is the inner part of the heater.

Mr. Christie: The lower box.

The Court: The lower box?

Mr. Christie: That is right. This is the casing——

The Court: And Exhibit 24-A is the——

Mr. Lyon: Cover for it.

The Court: Exhibit 24-B will be——

Mr. Christie: 24-B will be the four-foot economizer.

The Court: Very well. Received in evidence pursuant to the stipulation.

(The exhibits referred to, marked Plaintiff's Exhibits 24-A and 24-B, for identification, were received in evidence.) [73]

Mr. Christie: I'd like to offer this next exhibit, which I think Mr. Lyon will also stipulate, as the lower box of another Coleman heater of the model 67 variety as No. 25.

Mr. Lyon: Same stipulation.

The Court: Very well. It may be received in evidence.

(The exhibit referred to was received in evidence and marked as Plaintiff's Exhibit 25.)

(Testimony of John H. Hollingsworth.)

Mr. Christie: And the same stipulation with respect to the 3-foot economizer.

Mr. Lyon: And that will be 25-A.

Mr. Christie: 25-A.

The Court: Very well. It may be received in evidence.

(The exhibit referred to was received in evidence and marked as Plaintiff's Exhibit No. 25-A.)

Mr. Lyon: And it may be stipulated that the cover, 24-A, would go on either one of these, either 24 or 25.

Mr. Christie: That is correct.

The Court: Very well, gentlemen.

Mr. Christie: The burner which belongs on No. 24, I'd like to offer in evidence as 24-C.

Mr. Lyon: Same stipulation.

The Court: Very well. It may be received in evidence.

(The exhibit referred to was received in evidence and marked as Plaintiff's Exhibit No. 24-C.)

Mr. Christie: And the burner which belongs on the other [74] heater with the 3-foot economizer as 25-B in evidence.

Mr. Lyon: Same stipulation, your Honor.

The Court: Very well. It may be received in evidence.

(The exhibit referred to was received in evidence and marked as Plaintiff's Exhibit No. 25-B.)

(Testimony of John H. Hollingsworth.)

Mr. Christie: The upper grille with the 4-foot economizer, Exhibit 24-D in evidence.

The Court: Subject to the same stipulation?

Mr. Lyon: Subject to the same stipulation, except I would like to call the court's attention to the numbers "5-A," "5-B," "5-C," and "7" and "8" on 24-A. These various marks are not part——

Mr. Christie: They were marks, your Honor, made during some inter-party tests that we ran.

The Court: Very well. Exhibit 24-D is received in evidence.

(The exhibit referred to was received in evidence and marked as Plaintiff's Exhibit 24-D.)

Mr. Christie: And the same stipulation as to the upper grille for the 3-foot economizer to be marked in evidence as 25-C.

Mr. Lyon: Same stipulation.

The Court: Very well. It may be received in evidence.

(The exhibit referred to was received in evidence and marked as Plaintiff's Exhibit 25-C.)

Mr. Christie: I want to call Mr. Lyon's attention to the fact that on Exhibit 24-B, which is the 4-foot economizer, that these holes have been drilled subsequent to the inter-party tests, and were not there at the time. I will establish that by evidence.

Mr. Lyon: And they are not present as manufactured by the defendant.

Mr. Christie: That is correct.

The Court: Very well.

Q. (By Mr. Christie): Now, Mr. Hollingworth,

(Testimony of John H. Hollingsworth.)

to save time, would you step down from the stand and explain Exhibit 24, including its various parts, Exhibits 24-A, -B and -C and -D, pointing to the various elements?

A. Exhibit 24, which is the first box of the Coleman heater and encloses what we refer to as the first radiator, and it also includes a draft hood and means provided at the outlet of the draft hood for attachment to the second radiator.

It also includes a baffle mounted in the first box between the radiator and the back of the first box; and means at the bottom to receive the burner; means on the back in the form of angle spacers to space from the wall behind the first box.

The panel, or Exhibit——

Mr. Christie: 24-A. [76]

The Witness: ——24-A, has a means whereby it may be attached over the first box to form a trim and to mount flush to the wall; and a lower discharge grille in the upper portion of the panel to provide an outlet for the air moving, warm air moving up through the first box; a means provided on the base of the panel, or at the bottom of the panel to receive air from within the room at the floor level.

Exhibit 25—is that correct?

Q. (By Mr. Christie): That's 24-B.

A. 24-B, which is the second box and radiator, or as the Coleman Company calls it, the "heat economizer," which has the second radiator enclosed in a second box providing an annulus between the

(Testimony of John H. Hollingsworth.)

radiator in the second box and opening in the bottom of the second box to allow air to travel through the annulus; and a discharge opening part way up on the second box to provide a discharge opening on the second box for the discharge of air moving through the annulus; and an upper grille which mounts adjacent to the opening to provide a cover plate; and a discharge grille for the second box.

Coupled with that is what I earlier referred to as a plaster ground, which mounts here on the unit at the time that it is installed in the wall.

The Court: Has that last item been marked?

Mr. Christie: That has not been marked. Let us mark that in evidence as 24-E.

The Court: May it be received pursuant to the same stipulation?

Mr. Lyon: The same stipulation, your Honor.

The Court: What do you call that, again?

The Witness: I term it a plaster ground.

Q. (By Mr. Christie): Mr. Hollingsworth, will you explain how the heater goes together?

A. Yes.

Q. 24-A, -B, -C, -D, and -E.

A. Yes. The second radiator attaches to the first radiator in this manner. The header plate on the bottom of the second radiator is provided with holes so that it may be attached to the wall, the studs in the wall receive it. The attachment is such that the products of combustion traveling up through the first radiator and through the draft hood can move into the second radiator and then

(Testimony of John H. Hollingsworth.)

out the top of the second radiator into a flue, which the second radiator is adapted to receive. The heat economizer is also provided with a split opening at the top or at the discharge grille, [78] and further opening at the top of the radiator.

The Court: Do those openings at the top of Exhibit 24-B permit the escape of air?

The Witness: It is my understanding that air moves discharging out of this lower section of the opening into the room, can also—let me rephrase that. Air can discharge out of the lower opening into the room. That opening is split, sealed horizontally, so that the upper portion of that opening can receive air from the room into the upper portion of the economizer and discharge into the attic, on this four-foot economizer.

Q. (By Mr. Christie): Would you now describe the Exhibit 25-A, -B, et cetera, the other furnace with the three-foot economizer?

A. Yes. The other furnace, Exhibit 25— is that correct?

Q. That is correct.

A. (Continuing) —is, as Mr. Lyon stipulated, basically the same as Exhibit 24. There are minor differences. There are very minor differences in the construction from the draft hood area. Also Exhibit 24 has tabs provided on the side of the box up near the top, which do not exist on Exhibit 25. Other than that they are essentially identical. Exhibit 25 also has the same elements of construction in it that Exhibit 24 does, in that it is adapted to re-

(Testimony of John H. Hollingsworth.)

ceive a burner at the [79] bottom, and the same general description that applies to Exhibit 24 would apply to Exhibit 25.

Exhibit 25-A, which is the three-foot economizer, has a second radiator and a second box, means of attaching the second radiator to the outlet of the first box, a header plate providing means of attaching the heat economizer to the wall studs, and differs from the four-foot heat economizer in that the annulus provided between the radiator and the second box is no longer open directly underneath the header plate, but rather through an opening provided adjacent to the header plate at the base of the second box, so that air may move into that opening up through the annulus and be discharged into the room.

The upper portion differs from the four-foot economizer in that the air that is introduced into the upper half of the split opening in some instances, where provided with the proper flue pipe, will not be discharged into the attic, but rather will be introduced into the flue pipe itself.

The second three-foot economizer is also provided with the same plaster ground and same upper grille as the four-foot economizer.

The Court: Has that plaster ground been identified?

Mr. Christie: Let's identify the plaster ground as Plaintiff's Exhibit 25-D, and I offer it in evidence subject to the same stipulation. [80]

Mr. Lyon: The same stipulation, your Honor.

(Testimony of John H. Hollingsworth.)

The Court: Very well. Received in evidence.

The Clerk: 25-D.

(The exhibit referred to, marked Plaintiff's Exhibit 25-D, for identification, was received in evidence.)

Q. (By Mr. Christie): Mr. Hollingsworth, have you installed the furnaces represented by Exhibits 24-A with the various letters and Exhibit 25-B with the various letters, in a wall and run tests on them? A. Yes, I have.

Q. In doing so what did you follow by way of instruction?

A. For installing the heaters in the test wall I followed the published installation instructions that were supplied by the Coleman Company with the heaters.

Mr. Christie: I ask that this document entitled "How To Install Coleman Gas Wall Heater" be marked for purposes of identification as Plaintiff's Exhibit 26.

The Court: Is it stipulated to be a true copy of what it purports to be, Mr. Lyon?

Mr. Lyon: That is just what I am taking a look to see.

The Court: Subject to correction?

Mr. Lyon: Yes, your Honor.

The Court: Received in evidence as Plaintiff's Exhibit 26. [81]

(Testimony of John H. Hollingsworth.)

(The exhibit referred to, marked Plaintiff's Exhibit 26, for identification, was received in evidence.)

[See Book of Exhibits.]

Mr. Lyon: I would like to call the court's attention, before further marking this exhibit, that this Exhibit 26 has previously been marked, "4-7-54, Plaintiff's Exhibit 11," with the initials M.S. Those are not the present markings, and those were marked at a previous taking of depositions, so that the record will show what those markings are.

The Court: Is that agreed?

Mr. Christie: That is agreed.

The Court: Very well.

Q. (By Mr. Christie): Now, in installing Plaintiff's Exhibits 24 and 25, did I understand you to testify that these are the instructions you followed?

A. Yes, they are.

Q. In installing the four-foot heat economizer, which is identified as Plaintiff's Exhibit 24-B, what instructions did you follow?

A. I followed the installation instructions with reference to the vertical location and the manner in which the economizer should be installed.

Q. I show you a photostat of a drawing, which I will ask Mr. Lyon to inspect, and ask you if these are the instructions you followed with respect to the installation of the four-foot economizer? [82]

Mr. Lyon: I will make the same stipulation, that this was literature put out by the Coleman

(Testimony of John H. Hollingsworth.)

Company. I mean that this is a copy of such literature.

The Court: Instructions to install——

Mr. Lyon: Yes, sir.

The Court: What? The three-foot economizer?

Mr. Christie: Four-foot.

Mr. Lyon: This is the 48-inch economizer.

The Court: It will be received in evidence as Exhibit 27, Mr. Clerk.

Mr. Christie: As 27.

The Clerk: Yes, your Honor, No. 27 is the next one.

(The exhibit referred to, marked Plaintiff's Exhibit 27, for identification, was received in evidence.) [83]

[See Book of Exhibits.]

Q. (By Mr. Christie): I will ask you now, Mr. Hollingsworth, with respect to the instructions that you followed in the installation of the 3-foot economizer, which is Plaintiff's Exhibit 25-A, if these are the instructions you followed?

A. Yes, they are. I followed these instructions on the installation of the 3-foot economizer.

Mr. Christie: I will ask the same stipulation as to authenticity.

Mr. Lyon: The same stipulation, your Honor. I note on 26, 27, and this is 28, there are some markings on them in what would appear to be longhand. Those were not part of the instructions.

The Court: Only the printed portion?

Mr. Lyon: Only the printed portion.

(Testimony of John H. Hollingsworth.)

Mr. Christie: That is understood.

Mr. Lyon: And he is only offering the printed portion. I don't know, and I don't think he knows——

Mr. Christie: Well, I do. Mr. Kice put them on when we got them from him.

The Court: The instructions last identified are received in evidence as Plaintiff's Exhibit No. 28.

(The exhibit referred to was received in evidence and marked as Plaintiff's Exhibit No. 28.)

[See Book of Exhibits.]

Q. (By Mr. Christie): I hand you now, Mr. Hollingsworth, [84] a group of photographs which Mr. Lyon has already seen and——

Mr. Lyon: Yes, I have seen those.

Q. (By Mr. Christie): ——and I will ask you if these photographs illustrate the test installation that you testified you made in accordance with the installation instructions?

Mr. Lyon: I will stipulate those were the photographs of that installation at the time those tests were made and the depositions taken.

The Court: They truthfully and fairly depict what they purport to depict?

Mr. Lyon: They certainly do.

The Court: Have they been numbered?

Mr. Christie: I ask that this group of photographs be marked in evidence respectively as Plaintiff's Exhibits 29, 29-A, 29-B, 29-C and 29-D.

(Testimony of John H. Hollingsworth.)

The Court: So ordered. They may be received in evidence.

(The photographs referred to were received in evidence and marked as Plaintiff's Exhibits 29, 29-A, 29-B, 29-C and 29-D.)

[See Book of Exhibits.]

Mr. Lyon: Do you want to add this one? I will make the same stipulation.

Mr. Christie: Let's mark this one as a further exhibit, and mark it 29-E. [85]

The Court: Pursuant to the stipulation, Exhibit 29-E, the photograph, is received in evidence.

(The photograph referred to was received in evidence and marked Plaintiff's Exhibit No. 29-E.)

[See Book of Exhibits.]

Q. (By Mr. Christie): Mr. Hollingsworth, over the noon recess I asked you if you would mark Plaintiff's Exhibit 21 to identify the elements in the two Coleman heaters with the 3-foot and 4-foot economizers. Have you done so? A. Yes.

Q. Would you now describe to the court the several elements in the heaters as shown on Exhibit 21?

A. Before we recessed, I had marked there on the stand the left-hand portion of Exhibit 21, which was the cross-sectional view of the Holly wall heater. During the recess I marked the other two——

Mr. Christie: Would it save time if we marked this one "Holly," the one on the left; and this one

(Testimony of John H. Hollingsworth.)

“Coleman 3-foot” and this one “Coleman 4-foot” for identification purposes?

The Court: You are referring to the three figures appearing on Exhibit 21?

Mr. Christie: Yes, Your Honor.

Mr. Lyon: I think that would clarify his testimony.

The Court: You are marking the first figure on the left “Holly,” to indicate that is one of the plaintiff’s heaters? And the second one is—— [86]

The Witness: The Coleman 3-foot economizer.

The Court: And the figure to the right?

The Witness: Coleman 4-foot economizer.

Q. (By Mr. Christie): Now, I will ask you, Mr. Hollingsworth, whether the figure that you marked “Coleman 4-foot economizer” shows accurately the installation of the Coleman furnace, Exhibit 24, and the Coleman economizer, Exhibit 24-A in a wall in accordance with your understanding of the installation instructions?

A. Yes, it does.

Q. Now, will you explain to the court what the several elements shown on the Coleman with the 4-foot economizer, Plaintiff’s Exhibit 21, are, and how the apparatus operates?

A. Starting at the bottom, and referring to the 4-foot economizer, Coleman, this is the gas burner. The red arrow depicts the gas-air mixture that is burned in the first radiator moving up through the first radiator, through the draft hood, into the second

(Testimony of John H. Hollingsworth.)

radiator, and thence out into the vent. The blue arrow depicts——

The Court: Thence out the flue?

The Witness: Out the flue, yes. The blue arrows depict air movement outside the first box, and in the wall up behind the box and into the annulus between the—provided in the heat economizer between the radiator and the shell of the box, and thence out the upper grille. The yellow arrows [87] depicts the circulating warm air that is moving up around the first radiator and within the first box, discharged into the room through the lower grille.

I have also denoted the wall structure, the back wall, the first radiator, the baffle, the first box assembly, the air passage between the second radiator and the second box, the second radiator, the second box itself, and the upper grille.

The same description would apply to the Coleman with the 3-foot economizer.

Q. How does the 3-foot economizer differ from the 4-foot economizer? Or to put it another way, how does the furnace equipped with the 3-foot economizer differ from the furnace equipped with the 4-foot economizer?

A. The furnace equipped with the 3-foot economizer is mounted in the wall in such a manner that the space between the top of the first box and the bottom of the economizer is less than that of the 4-foot economizer.

The Court: You mean the open space, or——

The Witness: The space provided between what

(Testimony of John H. Hollingsworth.)

I have termed the header plate and the bottom of the economizer and the top of the first box is restricted on the 3-foot economizer installation as compared to that of the 4-foot economizer, as can be shown here by observing the drawings, the difference in the—— [88]

The Court: Does that appear, that difference in space appear to you to perform any function?

The Witness: It performs some function in this respect, your Honor: It does tend to restrict the air flow of that air moving up behind the first box and over into the economizer.

The Court: Now, you are referring to the blue arrows?

The Witness: Yes, I am.

The Court: Well, you mean that less air would flow from the space between the wall and the box?

The Witness: Yes, by virtue of the fact that the draft that's available in these two is basically the same, but the restrictions provided by this restricted space here, or the resistance to flow is provided by that restriction, it would reduce the amount of air that flowed up behind the first box and over through this space (indicating).

The Court: Would that in turn reduce the amount of so-called air that is released, flue air released through the upper vent, or upper grille?

The Witness: Yes.

Mr. Lyon: If your Honor please, I hope that we are not annoying you by coming here, but in this type of case——

(Testimony of John H. Hollingsworth.)

The Court: It is necessary.

Mr. Lyon: I have my expert, and so forth.

The Court: That is quite all right.

Mr. Lyon: Thank you. [89]

The Court: Have you finished with the drawing?

Mr. Christie: Yes, your Honor.

The Court: That is Exhibit 21.

Mr. Christie: Yes.

Q. (By Mr. Christie): Mr. Hollingsworth, have you compared the horizontal cross-section of the upper radiator and the lower radiator in the Holly heater with the 4-foot economizer?

A. The Coleman—I don't understand.

Q. I am sorry. A. The Coleman?

Q. I will rephrase it. In the Coleman heater with the 4-foot economizer.

A. Yes, I have.

Q. How did you do that?

A. I calculated the cross sectional area of the upper radiator mathematically, and by taking measurements, being a uniform constant, uniform section over its full length, I was able to do that. On the first radiator I was able to do that by computations only to the extent of approximating the area. So I had a method run under my direction whereby we sealed the tube at the top of the first radiator and filled the radiator with water, and then based on the volume and density of the water and height of the radiator, we were able to determine accurately the mean cross-section area of the first radiator. [90]

(Testimony of John H. Hollingsworth.)

Q. I show you a sheet of paper, which I will ask the clerk to mark as Plaintiff's Exhibit 30—is that it?

The Clerk: 30.

Mr. Christie: For purposes of identification.

(The document referred to was marked Plaintiff's Exhibit 30, for identification.)

Q. (By Mr. Christie): And I ask you if this states the calculation that you have just described.

A. Yes, it does.

Q. What would you say with respect to the Coleman heater with the three-foot economizer?

A. That the cross-sectional areas—comparing the cross-sectional areas in the first radiator and the second radiator would produce the same results. It is only the height of the economizer that differs.

Q. (By Mr. Christie): What did you determine to be the cross-sectional area of the lower or first radiator in the Coleman furnace?

A. 17.83 square inches.

Q. What did you determine to be the cross-sectional area of the upper radiator in the secondary heat exchanger?

A. 9.28 square inches.

Q. Have you calculated the ratio between the two?

A. Yes. The ratio between the two, dividing the cross-sectional area of the lower radiator by that of the upper [91] radiator produces a ratio of 1.92.

The Court: What was that figure for the upper radiator?

The Witness: 9.28, your Honor.

(Testimony of John H. Hollingsworth.)

The Court: And 17.83 over 9.28 gives you what?

The Witness: 1.92.

Mr. Christie: I ask that this document be marked in evidence as Plaintiff's Exhibit 30.

Mr. Lyon: No objection as illustrating the witness' testimony only.

The Court: Yes. That was the purpose?

Mr. Christie: Yes, that was the purpose.

The Court: Received in evidence.

(The document referred to, marked Plaintiff's Exhibit 30, for identification, was received in evidence.)

[See page 526.]

Q. (By Mr. Christie): Mr. Hollingsworth, in connection with the showings of the Coleman furnace with the three-foot economizer and with the four-foot economizer, on Plaintiff's Exhibit 21, you testified with respect to certain blue arrows, that the gas flows in certain ways as indicated by the blue arrows, or that the air flows. Did you conduct any tests that show this to be the fact?

A. Yes, I did.

Q. If so, describe them.

A. Yes, I conducted several tests.

I conducted tests with the heater installed in the test [92] wall structure provided with a glass back panel, which simulated the rear wall, by introducing smoke in the form of titanium tetrachloride at the base of the heater, where I have described the air enters. I was able to observe smoke traveling

(Testimony of John H. Hollingsworth.)

upward behind the first box and into the economizer or second box and out the upper grille.

Q. I hand you this group of six photographs, which are marked, respectively, Plaintiff's Exhibits 29, -A, -B, -C, -D, and E, and ask you to tell me whether you can show the court on those photographs where the smoke was introduced and what happened to it. A. Yes.

Q. Referring specifically to the individual photographs by letter. The first one is marked 29, the rest have a subscript -A, -B, -C, -D, and E.

A. Exhibit 29 would show the wall structure in which the heater was mounted. It also shows the test tunnel, which was used for other tests than these that I am going to describe at the moment, and which was not on the appliance at the time that I conducted the smoke tests. This one illustrative of the test installation (indicating).

The Court: "This" is Exhibit—

The Witness: Which is Exhibit 29-B. That would be illustrative of the test arrangement as it stood when I tested with titanium tetrachloride smoke. [93]

Q. (By Mr. Christie): Can you show from that photograph where you introduced the titanium tetrachloride?

A. Partially. I introduced it with a smoke wand through the aperture on the base of the panel, as can be seen here in Exhibit 29-B.

The Court: By the panel you refer to Exhibit

(Testimony of John H. Hollingsworth.)

24-A? Not the photograph, but the physical exhibit.

The Witness: Yes, that is correct.

I also introduced smoke with a bulb and pot arrangement, which provided means of introducing titanium tetrachloride into the test structure through the back of the wall, as illustrated in Exhibit 29-D, which shows the glass back panel on the rear wall of the installation. Inserted at the base of that panel were short sections of tubing which discharged into the warm air stream at various locations. Three of these locations being at the very base of the heater. One of the locations being part way up on the—behind the box back, but in the space between the box and the glass panel.

The Court: Which would correspond to the space between the box and the wall?

The Witness: Which would correspond to the space between the box and the wall.

The smoke introduced at any of these locations could visually be observed as going up behind the heater, and smoke [94] could be observed coming out the upper grille of the economizer.

Q. (By Mr. Christie): Did you see the smoke travel in the course that you have spoken of?

A. Yes, I did.

Q. Now, this testimony applies to the three-foot or to the four-foot economizer installation?

A. This specific test applies—the specific ones to which I am referring, in light of Exhibit 29-D, refer to the three-foot economizer.

Q. Did you observe the same facts and make

(Testimony of John H. Hollingsworth.)

the same tests with respect to both the three-foot economizer installation and the four-foot economizer installation? A. Yes, I did.

Q. Did you observe the same results?

A. I observed essentially the same results. I observed that there was air movement up the back of the box between the box and the wall and up into—and out of the economizer grille, in both the three and four-foot economizer installations.

Q. I understood you to testify that these smoke tests were made without the tunnel placed in front?

A. They were made both ways, as a matter of fact. However, the specific tests that I have been discussing were made without the tunnel being attached to the front. However, the [95] same results were produced in subsequent tests with the tunnel attached to the front, so in terms of what I observed I can say that it applied in both instances whether the tunnel was attached or not attached.

Q. I call your attention to the photograph marked 29-E, and particularly the upper portion of the photograph, and I ask you to tell me what it shows.

A. It shows the back of the heater. It shows the glass back panel, which simulates the rear wall. It shows the gap between the header plate or bottom of the economizer in the top of the box, which provides a space for air movement over the top of the box and up into the economizer, as illustrated in the center cross-sectional view on Exhibit 21.

Q. Did you introduce smoke at any place other

(Testimony of John H. Hollingsworth.)

than the back of the heater in the test you have described?

A. Yes, smoke was introduced at other spots. It was introduced at the sides of the heater, too, between the sides of the box on Exhibit 24, I believe, the first box, and the stud space in the wall.

Q. What did you observe with respect to that smoke?

A. I observed that that smoke flowed upward between the box and the wall, and that introducing smoke in that manner produced smoke from the economizer grille, upper grille.

Q. From the upper grille?

A. Upper grille of the economizer. [96]

Q. In both the case of the three-foot economizer and the four-foot economizer? A. Yes.

Q. Are you able to testify on the basis of the smoke tests anything with respect to the quantitative volume of smoke?

A. I would testify quantitatively only in this respect: that I observed and set up a test procedure which Mr. Henry Landsberg ran with a tracer gas, in which he used a sensitive detector to determine the quantity—quantitatively the amount of air that was moving up the back of the box and into the economizer and out the economizer grille.

Q. This was something else, though; this did not involve the observation of the smoke? Or did it?

A. No. It only substantiated that quantitatively.

Mr. Christie: Your Honor, we have a witness here, the young man who actually made the certain

(Testimony of John H. Hollingsworth.)

measurements. He is a student at Caltech, and he has been here since noon. I wonder if I could indulge by stopping Mr. Hollingsworth's testimony for a moment simply to put him on the stand and ask him to testify with respect to certain physical measurements that he made?

The Court: Is there any objection?

Mr. Lyon: If he will state what physical measurements [97] they were, because otherwise he probably will have to come back anyway in the morning, because we only have a few moments left.

Mr. Christie: I think it is very short.

Mr. Lyon: What is he going to testify to?

Mr. Christie: He is going to testify that he filled the radiators with water and the quantities that he got, and how he got the results.

Mr. Lyon: I will accept the testimony of Mr. Hollingsworth as to that, your Honor.

The Court: That has to do with the cross-sectional measurement?

Mr. Lyon: That's right. If that is all that he is for, I will stipulate that he would testify the same as these exhibits are, that he did as it states in Exhibits 22, and 30.

The Court: Let's get it in form, now.

What is the name of your witness, Mr. Christie?

Mr. Christie: His name is Mr. Walter Biggars.

The Court: Will it be stipulated, gentlemen, that Walter Biggars will be deemed to have been called on behalf of the plaintiff, and to have sworn and testified that he made those cross-sectional tests in

(Testimony of John H. Hollingsworth.)
the manner described in the testimony of Mr. Hollingsworth who is now on the stand, and that he reached the results that Mr. Hollingsworth has [98] stated?

Mr. Lyon: And that is set forth in Exhibits 22 and 30.

The Court: As the results of the measurements?

Mr. Christie: Yes.

We have, in his own handwriting, the report that he made.

The Court: Will you accept Mr. Lyon's statement about 22 and 30?

Mr. Lyon: As the summation of his report.

Mr. Christie: They are the summation of his report.

Mr. Lyon: I will stipulate that if called, he would so testify.

The Court: And that he will be deemed to have so testified?

Mr. Lyon: Yes, that he will be deemed to have so testified.

The Court: Very well. Do you accept the stipulation?

Mr. Christie: Yes, I accept the stipulation, your Honor.

If your Honor is interested, from the standpoint of explanation, we have here the sketches that Mr. Biggars actually made showing the sections which he filled with wax and the sections that he filled with water. Would this be useful to you?

(Testimony of John H. Hollingsworth.)

The Court: I think not, unless there is some issue on the subject. [99]

Is there some issue as to these measurements?

Mr. Lyon: No. The only issue in this matter, your Honor, is—I will agree that the total area is as they state, but I do disagree that that is the cross-sectional area of this device.

Mr. Christie: In that case, your Honor, I would like to put in evidence Mr. Biggar's calculation. I offer it as Plaintiff's Exhibit 31.

The Court: Will it be stipulated that——

Mr. Christie: Will you stipulate that this is something——

Mr. Lyon: I will stipulate that this was made by Mr. Biggars, but——

Mr. Christie: And if called he would so testify?

Mr. Lyon: Yes.

The Court: Very well. It is received in evidence pursuant to the stipulation as Plaintiff's Exhibit—30, Mr. Clerk?

The Clerk: 31, your Honor.

The Court: As Plaintiff's Exhibit 31.

Mr. Lyon: As illustrative of what he would testify to.

The Court: Of Biggars' testimony.

Mr. Lyon: Yes.

(The exhibit referred to, marked Plaintiff's Exhibit 31, for identification, was received in evidence.) [100]

[See page 527.]

(Testimony of John H. Hollingsworth.)

The Court: Exhibits 22 and 30 contain the results of the cross-sectional measurements?

Mr. Lyon: That is right, your Honor.

Mr. Christie: The Exhibits 22 and 30, that is correct.

Q. (By Mr. Christie): Mr. Hollingsworth, I show you Plaintiff's Exhibit——

Mr. Lyon: I believe, your Honor, this witness that he was going to call could be excused.

Mr. Christie: Correct.

The Court: Very well.

Mr. Christie: Thank you, Mr. Biggars.

Q. (By Mr. Christie): Mr. Hollingsworth, I call your attention to Plaintiff's Exhibit 31 and ask you if you will identify on the exhibit the portions of the radiators that were filled with water as you have testified to?

A. Would you like me to show that on the physical units?

Mr. Lyon: If you would, please.

Mr. Christie: Also mark it on the exhibit.

The Witness: On the physical exhibit?

Mr. Christie: No——

Mr. Lyon: Mark it with a red pencil on the physical exhibit, if you don't mind.

Mr. Christie: That will be perfectly all right.

The Witness: I believe it is marked on Exhibit 31 [101] already.

Q. (By Mr. Christie): Would you mark it on the physical exhibit No. 24, Mr. Hollingsworth?

A. Yes.

(Testimony of John H. Hollingsworth.)

This area across here, from here up, was filled with wax, so that it was this area from here down that was filled with water.

The Court: The clerk has some white chalk, gentlemen.

The Witness: That will be better.

The Court: You are indicating an area in there——

The Witness: This area was the area measured with water. This area from here up was filled with wax.

Q. (By Mr. Christie): The area from where the shoulder is on the radiator, from there on up was filled with wax, is that correct?

A. Yes, that is correct.

Q. We are now talking about Plaintiff's Exhibit No. 24, and the lower radiator which appears in that exhibit.

Mr. Lyon: The white mark denotes——

The Court: The top of the water?

Mr. Lyon: The top of the water, and the bottom of the wax.

The Court: Is that agreed?

The Witness: That is agreed.

Mr. Christie: Actually, wasn't it the other way around? [102] Didn't you have it upside down.

The Witness: In its present position that would be correct. Actually, as we measured it would obviously be the other way.

Q. (By Mr. Christie): In other words, you

(Testimony of John H. Hollingsworth.)

filled it with wax to the level indicated by the white chalk——

A. I will put “W” here for Wax in that area. I had better put “W-a-x” for Wax in this area, and write “Water” down here.

Q. And you filled it with water to what point?

A. This was mounted vertically, of course, and it was filled with water—it was filled with as much water as we could put in it.

Q. Now, will you make the same remarks, explanation, with respect to the radiator in Plaintiff's Exhibit 20? [103]

The Court: That is the Holly?

Mr. Christie: That is the Holly.

The Court: All right.

The Witness: The tubes were filled with wax to again what I would term the shoulder of the radiator so that this area up here did not include any water volume.

Q. (By Mr. Christie): Did you in this case follow the same procedure of filling the tubes with wax, turning the radiator upside down and filling the rest with water? A. Yes.

Q. Will you mark on Plaintiff's Exhibit 20 the portion that was filled with wax, just as you have done with the other one, and also mark where water was placed?

A. (Witness complies.)

Mr. Christie: That concludes our testimony on the prima facie—oh, excuse me. I have one other point.

(Testimony of John H. Hollingsworth.)

Q. (By Mr. Christie): I call your attention again, Mr. Hollingsworth, to Plaintiff's Exhibit 23, upon which I asked you over the noon hour to add the same legend on the Coleman pictures that you had on the Holly pictures. I will ask you again, to avoid confusion, if you will mark the left-hand picture about which you have already testified as "Holly," and mark the center picture as the "Coleman 3-foot economizer"; and the other as the "Coleman 4-foot economizer."

I notice that you have marked a certain legend on the [104] arrow pointing to the blue line in the device marked the "Coleman 3-foot economizer." Will you describe that legend and tell me——

A. Yes. I wrote that the air flowing upward around the first box and through the annulus provided in the second box and into the room through the upper grille is denoted by the blue arrows.

Q. I notice certain green arrows on that. What do they denote?

A. They denote that air that is drawn in there through the louvres at the top of the Coleman panel, Exhibit——

Q. 24-A. A. ——24-A.

Q. Do you want to show that actually to the court?

A. These louvres at the top of the panel are illustrated on the cross-sectional drawings, and green arrows are used to denote the air that is drawn in through those louvres into the economizer.

Q. Now, what have you to say with respect to

(Testimony of John H. Hollingsworth.)

that portion of Plaintiff's Exhibit 23 that is marked "Coleman 4-foot economizer"?

A. I have marked it in the same manner. I have indicated, or denoted the blue arrows in the same manner, described the blue arrows in the same manner I did on the 3-foot economizer. [105]

Q. And do these drawings of the 3-foot and 4-foot economizers that you have testified to—what exactly are these? I don't believe you told us.

A. I believe I previously——

Q. You made that testimony with respect to the Holly, but you didn't——

A. These particular pictures of the Coleman 3-foot economizer——

The Court: You are referring to Exhibit 23?

The Witness: On Exhibit 23—the pictures showing the Coleman 3-foot economizer and Coleman 4-foot economizer, or rather identified by those captions, show the sections in full scale of the Coleman installation in the area of the draft hood and its attachment to the base of the economizer.

Q. (By Mr. Christie): In ink you marked on the 3-foot economizer an arrow marked "gas flow." What does that mean?

A. That illustrates the directional flow of the gases that are burned in the first radiator and are flowing up through the draft hood into the second radiator.

Q. What is your testimony with respect to the arrow marked "gas flow" on the Coleman 4-foot economizer drawing on Plaintiff's Exhibit 23?

(Testimony of John H. Hollingsworth.)

A. That would be the same as on the 3-foot economizer.

Q. What would you say with respect to the scale of the drawing on the Coleman? [106]

Mr. Lyon: That has been asked and answered. He said it was the same full scale.

The Witness: Full scale to accurate dimensions.

Mr. Christie: That concludes our testimony from Mr. Hollingsworth on the prima facie case, your Honor.

Mr. Lyon: I will probably have long cross examination of this witness, your Honor.

The Court: Very well.

Mr. Lyon: I would like to start, though, for five minutes.

The Court: Very well.

Cross Examination

Q. (By Mr. Lyon): Mr. Hollingsworth, have you described the operation on either the 4-foot or 3-foot Coleman heaters? A. Yes.

Q. Completely?

A. No, I would say not completely.

Q. Why didn't you describe it completely?

A. Well, because it would become rather involved to go through the process of combustion and what takes place there; the aspects that involve dilution air sucked into the draft hood, and many of the minor conditions that would exist with the appliance. It didn't seem to me that they were significant.

Q. It didn't seem at all necessary for you to

(Testimony of John H. Hollingsworth.)

describe to this court the proposition that the Coleman heater takes in air for the economizer directly from the room instead of from the back of the furnace, did it?

A. I believe I mentioned the fact that the air was drawn, some of the air was drawn in through the front of the economizer.

Mr. Christie: He just got through testifying with respect to the green arrows.

Mr. Lyon: I object, unless counsel makes an objection to the question——

The Court: Let's not interrupt the examination.

Mr. Christie: I am sorry.

Q. (By Mr. Lyon): Did you not testify that the cooling of this jacket up here for this economizer was from the air coming up the back?

A. Yes.

Q. And you didn't at that time make mention, or bother to state that there was air also taken up directly from the room, did you?

A. No. * * * * * [108]

Q. (By Mr. Lyon): Mr. Hollingsworth, in the Coleman heater, actually doesn't the majority of the cooling of either size of economizer, the air for that cooling enters at the points marked 7 and 8 on Exhibit 24-A? [109]

Mr. Lyon: Is that correct? I think that is right.

The Court: 24-A is the trim, according to my notes.

The Witness: Would you repeat that question, please?

(Testimony of John H. Hollingsworth.)

Mr. Lyon: Will you read it, please?

(The question was read.)

The Witness: No; most certainly not.

Q. (By Mr. Lyon): Now, have you ever measured the area, for example, where air can enter the economizer from the back of the Coleman heater and the area from which it may enter directly from the room, through the vents 7 and 8?

A. No, I didn't.

Q. Would you still state that more air enters from the back on the Coleman heater?

A. Certainly.

Q. And yet would you still make that statement if you were shown that the area of the opening is in a ratio of 1 to 18?

A. I wouldn't be concerned with the area, Mr. Lyon, because I would be chiefly concerned with the draft action that was available concerning that area, rather than the area itself.

Q. Where does that draft action come from?

A. I believe, as I stated to the court earlier in my testimony, referring to Exhibit 21, that this conduit here which— [110]

Mr. Christie: Let's identify that conduit, Mr. Hollingsworth.

The Witness: —which is the—provides the conduit which is formed by the back of the box and the rear of the wall through which the air moves, denoted by blue arrows, that the draft action available there is substantial because the air is heated. I believe I testified that there was less air

(Testimony of John H. Hollingsworth.)

moving through the area to which I believe you were referring on the 3-foot economizer than on the 4-foot economizer——

Mr. Lyon: We are discussing the 3-foot economizer. Let us stay with the 3-foot for a moment.

The Court: It is after 3:00, gentlemen.

Does the plaintiff wish to offer Exhibit 23 for identification into evidence? According to my notes it is still marked for identification only.

Mr. Christie: I would like to mark it in evidence.

Mr. Lyon: As illustrative only of the witness' testimony.

The Court: Is that the purpose?

Mr. Christie: Yes, sir.

The Court: It will be received for that purpose. Exhibit 23 for identification is received in evidence.

(The exhibit referred to was received in evidence and marked as Plaintiff's Exhibit No. 23.) [111]

* * * * *

Mr. Lyon: Before we resume the testimony, your Honor, I would like to ask the court's plan of procedure in this case. Will we go ahead next Tuesday?

The Court: Yes. We will go ahead until we finish. Are they any out-of-town witnesses we can dispose of this afternoon?

Mr. Lyon: No, there are not. Why I ask is that I had that case in the other district, and if we were going to continue this, I would leave tonight for

(Testimony of John H. Hollingsworth.)

the East. But if we are not, we will get that case continued.

The Court: Very well. We will proceed here.

Mr. Lyon: Thank you.

Q. You have used in your testimony the word "cross-section." [115] What does the word "cross-section" mean?

A. Referring to area, it means the number of square inches in a horizontal plane. When I am speaking of a conduit such as we have been discussing, which is normally in a vertical position—or, in other words, it is the number of square inches of passageway there are available in that conduit.

The Court: If it is irregular in shape, your cross-section would have to be an average, would it, or mean?

The Witness: An average or mean cross-section, yes.

Q. (By Mr. Lyon): Now, Mr. Witness, are you not defining the words "mean cross-section" now; not "cross-section"? What does the term "cross-section" mean?

A. Cross-section would refer——

Q. I don't mean in reference to these exhibits. I mean the term cross-section in your definition of it.

A. Cross-section would have to refer to something. It could be cross-section to many different things. I would have to speak in terms of a conduit or some such thing. [116]

Q. All right. I have a pitcher here in my hand;

(Testimony of John H. Hollingsworth.)

what would the cross-section of that pitcher be?

A. You will have to define it to a greater degree than that before I could answer it.

Q. That is my point. There is no definition of a cross-section, then?

A. Oh, no, I wouldn't say that.

Q. Then what is the cross-section of this pitcher?

A. It would depend on what you would refer to as a cross-section in the art of making a pitcher, for example.

Q. In other words, I could have, as far as the words "cross-section" are concerned on this pitcher, I could take a section through here (indicating), which would amount to a plane, and that would amount to a cross-section, would it not?

A. Under certain conditions, yes.

Q. Under what conditions?

A. Yes, it would be a cross-section, that is correct.

Q. It is, isn't it? Not it could be, but it is?

A. It is a cross-section, yes.

Q. And if I put a plane through here (indicating), that surface that is made by that plane is a cross-section of this pitcher up here, isn't it?

A. Yes.

Q. And the same thing on the exhibits which constitute [117] both the defendants' devices and the plaintiff's, a cross-section could be right through the part—may I have a piece of chalk, please?—that I will mark on Exhibit 20-B, this would be a cross-section of this radiator, would it not, where I

(Testimony of John H. Hollingsworth.)

am drawing a white line, just above the word "Wax"?

A. In the trade that would not be considered as a cross-section.

Q. I didn't ask you about in the trade. As a physical fact, a plane through there would be a cross-section?

The Court: Isn't a cross-section, gentlemen, the view or area obtaining by bisecting any object at a given point?

Mr. Lyon: That is what I am trying to get this witness to admit.

The Witness: Yes, sir, I agree with that.

Q. (By Mr. Lyon): Then how can you say that the cross-section of this heater, Exhibit 20-B, a cross-section of that heater is any particular value, unless you state where on that heater the cross-section is taken?

A. I don't understand the question, I don't believe. Are you speaking specifically of the first radiator when you say "heater"?

Q. All right. I am speaking of the radiator in Exhibit 20-B, isn't it just as fair to say that the line I just drew is a cross-section of that radiator, as any other point on the [118] heater?

A. No, I don't believe so. Because that tube is not considered to be a part of the radiator in normal trade expressions.

Q. Then, this radiator in Exhibit 20-B doesn't connect with the second radiator, does it?

A. Oh, yes, it does.

(Testimony of John H. Hollingsworth.)

Q. How?

A. Indirectly it connects with the second radiator through the tubes in the draft hood.

Q. Doesn't the patent say the second radiator is attached to the first radiator?

A. I don't recall the specific wording.

Q. But this is not part of the radiator, the part where it says, "Wax"?

A. If I were referring to the cross-section of the first radiator——

Mr. Lyon: Will you please read the question to the witness.

(The question was read by the reporter.)

The Witness: No.

Q. (By Mr. Lyon): That is not part of the radiator. Then how do you define a radiator, please?

A. I would like to continue with my answer to that other question first, if I may. [119]

It is a physical portion of the first radiator in that it is a part of the same material and the same stamping, but I still must refer to the definition by the trade of a radiator; and in referring to the cross-section of the radiator I would not, being familiar with the term "Radiator" as used in the trade, consider the tube as part of the radiator.

Q. Then, can you define for me what you mean by the term radiator?

A. The term radiator can apply to, or does apply to a heat transfer surface, a heat exchange surface, one side of which is in contact with flue gases, the other side which is in contact with air.

(Testimony of John H. Hollingsworth.)

It can include a combustion zone or it may include only a portion of that heat exchange surface that is somewhat removed from the combustion zone. By that I mean this: that if I referred to the first radiator in which the burner was located, it would include the combustion zone of the appliance. If I referred to the second radiator, which is substantially removed from the burner, it would be, then, a heat exchange surface which is in contact with the flue products after they had passed through the combustion process.

Q. Now, these necks I refer to on Exhibit 20-B that have the word "Wax," do they not have their total—Strike that question. I need a preliminary one. [120]

Do these portions marked "Wax" that you call conduits, or something, not contain flue gases and heat gases? A. Yes, they do.

Q. And do they not radiate into the box of this heater? A. Yes, they do.

Q. Then they are a radiator?

A. Not necessarily, because the draft hood would do that same thing, and I would not call the draft hood the radiator.

Q. Then, how do you distinguish these necks, whatever you want to call them, from the main part?

A. By trade terminology. I believe, first, it would be necessary for you to understand the function of the tube as it is designed. It performs a double function. It connects the radiator with the draft

(Testimony of John H. Hollingsworth.)

hood, and the area of the tube is controlled in such a manner that it acts as a control over the gas-air mixture in the radiator. It is a partial draft control over the first radiator. And functionally it is probably more a portion of the draft hood than it is anything else in its function.

Q. When you constrict or decrease the area in a flue pipe, do you increase or decrease the draft through that pipe? A. I don't change it at all.

Q. In other words, if you have a smaller neck, for example, than the rest of the radiator, you will have the same draft through that radiator as if you had no constriction?

A. Draft is a theoretical term. Draft relates to the available head—a pressure difference that might exist. It relates to the difference in the weight of the column of air on the outside as compared with the weight of the column of gas or air on the inside. It is a theoretical term. The small tube would restrict flow because of the frictional resistance that it would produce; but it would have no relation to the term “draft” in itself.

Q. All right. Leaving out the word “draft,” then would the flow be greater or less with this restriction?

A. With an equal energy source available to produce that flow, there would be less with a greater restriction, obviously.

Q. Then actually do not these necks here control the flow in the rest of this radiator?

A. To a large degree they have a very import-

(Testimony of John H. Hollingsworth.)

ant bearing on the flow in the first radiator. That is their design function; one of their design functions.

Q. Now, are not these pipes smaller in Exhibit 20-B than what you called the second radiator in Exhibit 20-A, which is Plaintiff's—which you stated was the Plaintiff's manufactured [122] device?

A. You mean smaller in cross-sectional area?

Q. That is right.

A. Yes. I think they are somewhat smaller.

Q. Therefore, wouldn't these two pipes control the draft in this whole thing over and above what the effect of this upper draft flue would be?

A. No, sir, not in the whole thing.

Q. How can you get more through here than these allow to go through them?

The Court: "Through here," you are referring to the pipes in Exhibit 20-A?

The Witness: Would you rephrase that. I don't understand that question.

Q. (By Mr. Lyon): How can you, by increasing the size in the second radiator, force a greater draft when you constricted it already?

A. Force a greater draft? I still don't understand.

Q. Well, didn't these two pipes control the draft or the flow through both radiators?

A. No, sir; through the first radiator only.

Q. Then how will the second one have any effect on the first radiator? A. It doesn't.

Q. Now, I will ask you about the defendant's

(Testimony of John H. Hollingsworth.)

device. [123] On Exhibit 24 you have here a part that you have marked "wax." Is that part of the radiator in that device?

A. No, I would say that it would perform the same design function and could be described in the same manner as the tubes in Exhibit 20.

Q. And that is smaller in size and cross-sectional area than in the second radiator which is shown in either Exhibit 24-B or 25-A?

A. Yes.

Q. Now, when you have described what you have called the horizontal cross-section—the measurements were made here of these Exhibits 20, 24 and 25—you were describing the average section of the first radiator in these devices, minus the upper pipe?

A. Yes.

Q. Now, I would ask you, as the inventor of the patent in suit, to show me anywhere in this patent that it says a "mean area."

A. It doesn't say a "mean area."

Q. It just says any cross-sectional area, doesn't it?

A. I don't believe it says that.

Q. Well, will you please explain where it says anything else?

The Witness: May I have a copy of the patent?

Mr. Lyon: If your Honor please, at this time while he [124] is looking for the answer——

The Court: The claims speak for themselves—refer to a horizontal cross-section.

Mr. Lyon: Yes, but doesn't say what horizontal——

(Testimony of John H. Hollingsworth.)

The Court: It speaks for itself. We don't have to have the witness go into it.

Mr. Lyon: Maybe he can find a statement in the patent.

The Court: If he can, we can, too.

Mr. Lyon: Well, I think he is going to try to interpret some language, and I want to know what the interpretation is.

The Court: Very well.

Mr. Lyon: If your Honor please, this brings us back to the matter of these admissions. I think your Honor has heard the testimony and you know why I am now willing to admit the admissions as they stand, because even with the admissions on the record, I do not believe that they mean anything. I believe it's still the court's province to interpret whether that is the meaning of this patent in suit or if that language, even if it is admitted to be present, has any meaning at all.

The Court: In other words, you are willing to deem the requests all admitted?

Mr. Lyon: All except the one as to whether their device is built in accordance with the patent in suit. That general statement, why, I'd refuse to admit that.

The Court: That's the admission that refers to the invention? [125]

Mr. Lyon: It is admission No.—

The Court: 14.

Mr. Lyon: I believe so. That is the one where

(Testimony of John H. Hollingsworth.)

they ask is their Narrowall heater built in accordance——

The Court: Request No. 14. "That the wall heaters manufactured and sold by the plaintiff and designated as the 'NarrowWall' embody the invention described and claimed in the patent in suit."

Mr. Lyon: That is exactly right. That is the one that I had in mind. Well, all of these are pure conclusions.

The Court: It would embody any invention claimed in the patent in suit. There is an admission as to that, is there not?

Mr. Lyon: No, because my point is that the claim of this patent in suit is entirely invalid for lack of definiteness. And I point——

The Court: But the request is two-fold. The invention is described—that assumes the fact that any inventions are described——

Mr. Lyon: That is my point; that there are none described.

The Court: But there is this described and claimed——

Mr. Lyon: That is what I mean, none described——

The Court: ——which under the rule would require you to read that as "described or claimed," wouldn't it?

Mr. Lyon: Well, I state—— [126]

The Court: Aren't there any inventions claimed in the patent?

(Testimony of John H. Hollingsworth.)

Mr. Lyon: That is my contention, that there is no invention either described or claimed.

The Court: I have your point.

Mr. Lyon: The very indefiniteness of the claim in suit.

The Court: Now, is there a question pending?

Mr. Lyon: Yes. I have asked this witness wherein is the description of the term cross-section or where it is supposed to be taken from.

The Witness: In the patent specifications, I believe it is called, I refer to it in this manner: "In the heater just described——"

Mr. Lyon: Would you give us the page number and the line number?

The Witness: Yes. That's page 3, line 29.

"In the heater just described the horizontal cross-section of the second radiator is considerably smaller than that of the first, and is designed so that a normal draft with a very short flue will barely cause air to be drawn into the system through the draft hood and so that increase in chimney effect does not increase dilution through the draft hood to a substantial degree." [127]

I then attempt to discuss draft. In the paragraphs immediately following, to describe or to amplify the statement I have just read——

Q. (By Mr. Lyon): You have finished your answer?

A. No, sir. At the bottom of page 3, line 75, and continuing on for two paragraphs, I have discussed the effect of the constricted area on the frictional

(Testimony of John H. Hollingsworth.)

resistance to flow and why that produces the result——

Q. Is that at the bottom of column 6?

A. I beg your pardon?

Q. I haven't been able to find out where you are referring to. Is that the bottom of column 6 or—

A. Page 3 at the bottom of the page, left-hand side, "Frictional resistance to laminar flow is essentially proportional to the velocity of such flow." And so forth.

Q. Well, that is the bottom of column 3.

A. Column 3, excuse me.

Q. There are no page numbers.

A. All right. Column 3. [128]

Beginning with that paragraph I have attempted to describe why restricting the cross-sectional area produces the results that are described in the patent with reference to flow through the second radiator.

Q. But that doesn't describe any particular area, does it?

A. I believe to anyone that has practiced in the art it most certainly does.

Q. Well, every time you put a constriction in those radiators anywhere you are going to alter the draft according to that statement, aren't you?

A. Oh, yes.

Q. Then these pipes in Exhibit 20-B, in this neck in Exhibit 24, are going to constrict the draft, slow it up, are they not?

A. Yes.

Q. And they are a great deal smaller in cross-

(Testimony of John H. Hollingsworth.)

sectional area than the area of the second radiator?

A. Yes; but I don't see where that has any bearing on the first radiator's cross-sectional area.

Q. Now, taking, for example, Defendant's Exhibit 24, I will draw a line which I am going to label with a big "C" here and an arrow pointing to it; now, could you not take a cross-sectional area right across that point? A. Yes. [129]

Q. Within the meaning of the horizontal cross-section? A. Yes.

Q. Is that the same horizontal cross-section area as, for example, through where I make the line "D"?

A. It may or may not be.

Q. Do you know?

A. I would have to measure it to know.

Q. You haven't measured it?

A. Obviously not exactly in the plane that you have drawn those lines.

Q. Then you don't know whether either C or D are bigger or smaller than the cross-sectional area in the second radiator in Exhibit 24-B, do you?

A. I don't know that definitely, no. I know, however, when I speak in terms of the area of the first radiator being practiced in the art, that I am speaking of the cross-sectional area basically in the plane of the combustion zone of the gases.

Q. But your definition excludes anything like the necks and pipes?

A. Oh, yes.

Q. They are not part of this radiator and have no effect on it, according to you, then?

(Testimony of John H. Hollingsworth.)

A. I didn't say that. I said they had an effect on it, very definite effect on it, and they are a physical part [130] of it; but they are not a functional part of the radiator in the sense that the trade would define the first radiator.

Q. I don't want the trade's terms; I want the actual facts of what happens. The minute you put those constrictions in there, in the necks, or those tubes in Exhibit 20-B or 24, then the cross-sectional area through that radiator, at least at one point, is a great deal smaller, is it not, than the cross-sectional area in the second radiators?

A. Through one part of that physical radiator, that's right.

Q. When you have a flow of gases up through these radiators, they act the same as if they were fluids, do they not? The same rules——

A. The same rules of fluid mechanics apply to both over a large range, yes.

Q. And when you put a bottle-neck in any type of conduit for a fluid, is not that bottle-neck the control as to the flow of the fluid in the entire system?

A. It is a partial control. It can be the major control. But it is not the whole or complete control, no.

Q. But you would get no more draft in the lower part of one of these radiators than you could get through the flue here at the neck, could you?

A. Again, I would prefer to get away from the word "draft" if you don't mind, because "draft" is

(Testimony of John H. Hollingsworth.)

a rather theoretical [131] term. By "draft" do you mean the rate of flow?

Q. Well, then, maybe we had better find out what you mean by "draft." The patent here uses the term "draft."

The Court: By your question you mean flow, flow of air?

Mr. Lyon: No. I want to know what he means by the word "draft." That they control the draft by having a smaller——

The Court: You are abandoning the question you have pending now?

Mr. Lyon: I want to know what you mean by the word "draft," if you are going to qualify your answer.

The Witness: I will read it from the patent. Column 3:

"Draft is what tends to make gas move upward through a flue and is the result of a pressure differential, that is, the difference in the density of the column of gas in the flue and a like column of equal height outside. Hence theoretically available draft is a function of flue height and flue temperature. Although the theoretically available draft is a measure of static condition and is never fully obtained due to frictional losses in the flue, the actual draft at any flue temperature is still closely related to the flue height and any increase in that height will cause the flow of gas to increase until the total energy loss of the system equals [132] the theoretically available draft."

(Testimony of John H. Hollingsworth.)

Q. (By Mr. Lyon): Now, can you answer the question of whether this neck or these tubes control the draft in either of these two devices?

A. I think in view of what I have just read, that I am still entitled to ask that we get away from the word "draft." I would prefer to talk about the rate of flow, if that is what you are referring to.

Q. You can't answer that question, then, can you?

A. Not until it is more clearly defined, so that I may more thoroughly understand what your question is.

Mr. Lyon: If your Honor please, I would like the witness to be instructed to answer. He has defined each term himself.

The Court: He says he doesn't understand your question. Ask him what he doesn't understand about it.

Q. (By Mr. Lyon): What don't you understand about the question?

A. You speak of draft. Draft is a measure of available energy, and if you are speaking of draft only in terms of a measure of available energy, then I can answer that the tube does not affect—the cross-sectional area of the tube does not affect that available energy; but I don't believe that that is what you were intending by the question.

If your question—rephrasing it in my own words—if your question is this, if you are asking me if a change in [133] the cross-sectional area of the tube at the top of the radiator affects the flow of flue

(Testimony of John H. Hollingsworth.)

gases through the radiator, the rate of flow of flue gases through the radiator, then I can answer yes it does.

Q. Then does the size of the second radiator, in other words, the available area through which the gases have that size, and the area of the section in the first radiator, have any influence on the draft?

Pardon me.

Does the differential in the area between the second radiator and the first radiator have any influence on draft?

A. Speaking of draft in its strictest sense as available energy, no.

The Court: Speaking of it in the sense of flow, what would your answer be?

The Witness: Speaking of it in the sense of flow, the relationship between the second radiator and the first radiator would have an effect on the rate of flow through the second radiator in this respect: The second radiator is defined as being smaller than the first radiator—well, it is difficult to answer. The area of the first radiator, cross-sectional area of the first radiator, is related to a great degree to the amount of gas that the appliance is designed to burn. And using that as a reference point, then if the area of the second radiator is changed with relation to the [134] area of the first radiator, I can affect the rate of flow through the second radiator, yes, in the terms of the patent, if I make myself clear, in the terms of the functions that I am trying

(Testimony of John H. Hollingsworth.)
to create, the operation that I am trying to create as I have described in the patent.

Q. (By Mr. Lyon): All right. The rate of flow—when you put the neck or the tubes in there, doesn't that have a similar effect to the change in area up in the second radiator?

A. It has that effect on the lower radiator, yes. It is necessary—rather, not completely necessary, but it is a desirable design means of controlling the rate of flow through the first radiator.

Q. Isn't it a fact that that was all old and well-known long before you ever went into the stove business or heater business?

A. What fact, Mr. Lyon?

Q. That to decrease the area anywhere along a flue would slow down the flow through the flue?

A. Oh, yes, any fluid mechanics book would teach me that.

Q. And it can be accomplished by putting a neck at the top of the first radiator, or putting it up into the second—or by making the second radiator smaller, can it not? [135]

A. By making the neck at the top of the first radiator smaller I can produce control over the flow through the first radiator, yes. By controlling the cross-sectional area of the second radiator I can control the rate of flow through the second radiator, yes.

Q. Well, now, you are playing on words. Unless you change the diameter some place or the cross-sectional area some place in the second radiator, you

(Testimony of John H. Hollingsworth.)

are not altering the flow once it enters in the bottom, are you? The second radiator does not control the flow through itself?

A. To a large degree it does, yes.

Q. Well, where is your control if you don't change the diameter in any part?

A. By the proper selection of the cross-sectional area with relation to the known volume that I want to put through that.

Q. But you have already determined that by the neck here?

A. No, I haven't; no, I haven't, because——

The Court: By "neck here," you are referring to the neck——

Mr. Lyon: The neck or the pipes of either exhibit.

The Court: Of the first heater?

Mr. Lyon: Yes.

The Court: The lower heater. [136]

The Witness: I think it should be understood that part of the flow through that second radiator, an important part of the flow in appliances, other than those built according to this patent, is that flow that enters through the relief opening of the draft hood. It is that flow, chiefly, that we are trying to control by the cross-sectional area—by the proper selection of cross-sectional area of the second radiator in its relationship to the area of the first radiator.

Q. (By Mr. Lyon): But the neck controls the flow, does it not?

(Testimony of John H. Hollingsworth.)

A. The neck has a partial control over the rate of flow through the first radiator, the neck of the first radiator has partial control over the rate of flow in the first radiator.

Q. What is the purpose and reason for using this device 20-A on top of Exhibit 20-B?

A. The purpose is many fold. I think it is pretty well defined in the patent. Chiefly its purpose is to control appliance efficiency and wall temperatures above the lower section of the appliance.

Q. Well, that is one purpose. Will you define for us now what heater efficiency is?

A. Heater efficiency?

Q. Yes.

A. Heater efficiency is the ratio of heat input to heat [137] output.

Q. And how do you arrive at that ratio on one of these heaters?

A. By well-established test procedures which determine the flue loss of the appliance as compared to its rated input.

Q. Would you explain the method of doing that to us?

A. The temperature of the flue gases in the vent pipe are determined, the average temperature——

Q. (By Mr. Lyon): Now, take Exhibit 20-B——

Mr. Christie: Have you finished your answer?

Q. (By Mr. Lyon): If you don't mind my interrupting, let's give an example of how you would get it on Exhibit 20-B and 20-A, a physical demonstration of how you would get heater efficiency.

(Testimony of John H. Hollingsworth.)

A. If I were referring to that, I would, first of all, like to say this: that I would describe it in the manner of the procedure that is used by the American Gas Association testing laboratories, because that is the one most well recognized.

Q. That is just what I would like to have you do.

A. That procedure in its present form is somewhat different from what it used to be. That procedure has been changed because of what we have determined from the development of this appliance. But the procedure that was used at the time that this Holly appliance was approved by the American Gas [138] Association is this: The appliance is installed in a wall structure which simulates the installation conditions in the field, approximately; to the top of the appliance, which in this instance would be the uppermost portion of Exhibit 20-A,—

The Court: That is the second radiator?

The Witness: Which is the second radiator, is attached a four-foot section of standard flue pipe, for which this is adapted to receive. Flue temperature readings are taken in the flue pipe. By flue temperature readings I am speaking now of an average of several thermocouple readings in a horizontal plane across the flue pipe, at the same time—

Q. (By Mr. Lyon): Whereabouts are those taken, what horizontal plane in the flue pipe?

A. They are taken at a plane three feet above the appliance outlet, as I recall. Further than that, I might add that the flue pipe is insulated to reduce any flue loss that might exist in that three-foot

(Testimony of John H. Hollingsworth.)

section of flue pipe to a minimum. In addition to the flue temperature a carbon dioxide content measurement is made of the flue gases. And from these two measurements we can determine the total heat content of the flue products and, thereby knowing the total heat input to the appliance we can determine its efficiency.

The Court: How do you know the total input?

The Witness: The total input is part of the approval. It has to be defined, to begin with. [139]

The Court: You start with that, you take that from the burner, do you?

The Witness: Yes.

This, for example, your Honor, is a 35,000 B.T.U.-per-hour appliance.

The Court: The burner that is in the first radiator has a B.T.U. rating, does it?

The Witness: Yes, it does.

The Court: And you start with that, and the other measurement is relative to that?

The Witness: Yes, your Honor.

The Court: Do you consider as loss the heat that goes out the flue, is that it?

The Witness: Yes.

The Court: That is the loss energy?

The Witness: Yes.

The Court: The difference between the input and the loss—the loss deducted from the input gives you the output, is that it?

The Witness: That is correct.

(Testimony of John H. Hollingsworth.)

Q. (By Mr. Lyon): That is the heater efficiency, that difference?

A. Well, the ratio of those differences is the heater efficiency, yes.

Q. Now, in getting the input you have to accurately [140] account for the volume of gas being burned and its B.T.U. content, as well, do you not?

A. Yes.

Q. That is very carefully controlled during one of these tests? A. Yes.

Q. And if there is any variation in that input of gas, not only as to rate, but as to B.T.U. content of gas itself, it would throw all the figures off, would it not?

A. Not necessarily all of them. It would depend on the figures that you were concerned with. Some of them would affect—— [141]

Q. I mean in figuring your——

A. Flue loss?

Q. In figuring your efficiency. If you had any real variance in the contents of the gas or its volume.

The Court: You mean by that if the heater didn't measure up to its rated capacity of input?

Mr. Lyon: That is right.

The Witness: That has some effect, but not very serious effect on efficiency. However——

Q. (By Mr. Lyon): Now, what is the minimum efficiency that the A.G.A. will approve for one of these heaters? A. 70 per cent.

Q. Now, if the temperature coming out of one

(Testimony of John H. Hollingsworth.)

of these secondary radiators exceeds certain degrees, the higher it goes the higher the efficiency, is that not right?

A. It depends on the CO₂ content of the flue product.

Q. Then the heat in the secondary radiator doesn't amount to anything, only the CO₂—

A. I didn't say that. But I say that it is the measurement of the two, both the flue temperature and the carbon dioxide content that is a measure of the flue loss.

Q. Will the CO₂ content through this flue vary as long as the burner is running at a set rate?

A. If the burner is running at a set rate and no other conditions are changed, it will remain at the constant. [142]

Q. Assuming that the conditions remain the same, the higher the temperature—the outlet of this secondary or this second radiator—the lower the efficiency, is that not true?

A. Generally speaking, that is true. However, that is not always the case. But because you have changed one of the conditions—

Q. What condition have I changed?

A. You have changed the available draft which will change the rate of dilution of the flue products through the draft hood relief opening. It can change the gas-air mixture ratio to some extent in the first radiator.

Q. Now, the only way you could do that is by

(Testimony of John H. Hollingsworth.)

intentionally putting a plug through some of these passages, opening them wider or——

A. The only way I could change the flue temperature?

Q. No. To change these drafts you are speaking about.

A. By changing the temperature of the gas, I change the drafts.

The Court: As I understand it, you take the temperature in the flue and that's the waste, loss of energy—represents the loss of energy.

The Witness: Total heat content of the flue is the waste energy loss.

The Court: So if that is more than 30 per cent of the [143] input——

The Witness: Then I cannot——

The Court: ——it is below the rated minimum, rated efficiency.

What does the carbon dioxide measure have to do with that?

The Witness: The carbon dioxide measurement enables me to determine the mixtures that I have within the flue.

The Court: In determining the efficiency, you have so many B.T.U. units coming from the heater, theoretically——

The Witness: Yes.

The Court: ——and so many of those are going out the flue——

The Witness: Yes.

The Court: ——being wasted.

The Witness: Yes, sir.

(Testimony of John H. Hollingsworth.)

The Court: Now, the difference between those two would determine the output of the heat.

The Witness: Yes.

The Court: Well, what do you do with this CO₂ measurement? How does that figure in the computation?

The Witness: The manner in which I determine the total heat content of the gases going out of the flue is this: If I know the composition of the flue gases and the temperature of the flue gases, and knowing the specific heats of each one of the components, I can determine the total heat content.[144]

The Court: In other words, that's the method of computing the B.T.U.s that are going out the flue?

The Witness: Yes. And the CO₂ measurement enables me to determine the content, the mixture of the flue gases. It is a measurement, chiefly, of the amount of excess air over and above that needed for combustion that is in the flue.

Q. (By Mr. Lyon): It also helps in determining whether all your gas was actually burnt, too, doesn't it? A. Yes.

Q. Because in all of these there is some gas that doesn't get burnt, some of the available B.T.U.s in the gas?

A. That's unlikely because in addition to these tests for efficiency, there are also tests for carbon monoxide content, and if combustion was incomplete, normally the appliance would not pass the test.

(Testimony of John H. Hollingsworth.)

However, you are correct, that it is a measure of completeness of combustion.

Q. Now, Mr. Hollingsworth, isn't the purpose, the main purpose of this secondary heat exchanger, Exhibit 20-A, to enable you to burn a larger volume of gas in the lower radiator than you could if you only had an ordinary pipe on it, ordinary flue pipe on top of the first radiator?

A. No. That's—would be completely a secondary function. That would be a minor objective.

Q. Could you operate Exhibit 20-B with an ordinary flue [145] pipe on it at its rated output of 35,000 B.T.U.?

A. No.

Q. Why not?

A. Because there are some obvious—some heat transfer, an appreciable amount of heat transfer that takes place in the second radiator, in the secondary heat exchanger, Exhibit 20-A.

The Court: But that doesn't answer the question, does it? The question is why not. You say it can't be operated, as I understand. The question is why can't it. Why isn't it possible to operate?

The Witness: Oh, well, in the first place it wouldn't—it would no longer be A.G.A. approved.

Q. (By Mr. Lyon): Why wouldn't it get A.G.A. approval then?

A. Well, because—

The Court: We aren't referring to desirability. As I understand, the question was referring to possibility. You say it is impossible to operate, as I understand you.

(Testimony of John H. Hollingsworth.)

Mr. Lyon: I will amend the question, your Honor, to say this: It would be impossible to use it under A.G.A. rules; which the witness, I think, will affirm with me, none of these heaters can be operated without that approval.

The Witness: That was my understanding of your question. [146]

Mr. Lyon: So when we say "impossible"—

The Court: That means impracticable.

Mr. Lyon: Well, all right. It might burn a house up.

The Court: That is what I was getting at. Isn't that the objection? If you operate it with an ordinary flue pipe with that input, it would concentrate too much heater in a small space.

The Witness: Yes, sir, and I have seen that in my own experience, where an installer has neglected to attach a secondary heat exchanger to one of these devices and there has been a serious consequence in terms of fire hazard.

Mr. Lyon: And that is because the temperature in the flue gets too high, is it not?

The Witness: It is because the wall is no longer protected from the flue temperatures. The normal flue pipe is not designed to provide air circulation through an annulus surrounding it in the manner that the secondary heat exchanger is designed.

Q. (By Mr. Lyon): That's because it gets too hot, isn't that it?

A. The walls get too hot.

Q. How about the flue? What gets the walls hot?

(Testimony of John H. Hollingsworth.)

A. The temperature of the flue pipe.

Q. Then it is the flue pipe that gets too hot for safety, is that not true? [147] A. Oh, yes.

Q. Now, therefore, you put a cooling means around this flue, did you not, to reduce the temperature in that flue? A. Yes.

Q. Keep it cool.

A. If you wish to refer to the second radiator as a flue, yes.

Q. It isn't anything else but a ventilated flue stack?

A. In a sense it is. However, it is not considered that. And the American Gas Association would not allow us to call it that. It is a very definite part of the appliance, because it performs a part of the overall function of the appliance.

Q. What is a ventilated flue stack, please?

A. A ventilated flue——

Q. Stack. A. ——stack?

Q. Yes.

A. I would assume you were referring to what we term double wall metal vent, which has an inner and outer jacket and is ventilated in such a manner that it protects the wall surfaces.

Q. At the time you designed this secondary heat exchanger, weren't there several ventilated flue stacks on the market? [148]

A. Yes, sir. There had been one in particular for a long period of time.

Q. Would you name what that was?

A. What was termed the Payne "A" vent.

(Testimony of John H. Hollingsworth.)

Q. How about Metalbestos, the line of Metalbestos?

A. That had been on the market for a short period of time.

Q. Could you describe the construction of one of those? Take the Metalbestos, for instance.

A. Yes. The Metalbestos type B vent, as we would call it, has an inner section, a first flue pipe I suppose it could be called, which actually confines the flue products; and an outer jacket spaced away from that flue pipe.

Mr. Lyon: Maybe this will save you time. I will hand the witness a document which I ask be marked as Defendant's exhibit next in order.

The Court: Has it been heretofore marked?

Mr. Lyon: No, your Honor.

The Court: It will be Defendant's Exhibit F.

Mr. Lyon: The plaintiffs have seen the exhibit. I have provided them with a copy.

No, it would be way down the line.

The Court: You mean mark it following the group heretofore marked?

Mr. Lyon: I have a list of exhibits here, your Honor. It would be Exhibit T—should be. [149]

The Court: It will be so marked; Defendant's Exhibit T for identification.

(The document referred to was marked as Defendant's Exhibit T for identification.)

Q. (By Mr. Lyon): Now, does this Exhibit T refer to the device known as the Metalbestos that you referred to? A. Yes, it does.

(Testimony of John H. Hollingsworth.)

Q. And that Exhibit T describes a ventilated flue stack, does it not? A. Yes, it does.

Q. And you were familiar with those when you made the alleged invention in suit?

A. Oh, yes.

Q. Now, would you point out to the court how that device works, and its purpose?

A. Its purpose is to keep the walls cool. It works in this manner: This picture, which is a line drawing and would illustrate the heater mounted in the stud space of a wall—this being the top of the wall or the plate line as we would call it——

Q. That is the attic line?

A. The stud spaces left open at the point of entrance into the attic. The pipe is so designed that the inner section carries the flue products; the outer section, which is a jacket, encloses the inner pipe, provides an annulus between [150] the inner and outer; air is drawn down through the stud space and into holes provided at the base of the outer jacket, up between the inner flue pipe and the jacket, and out again.

Q. Into the attic or outdoors?

A. Either into the attic or outdoors. I believe, as it is illustrated here, it would be outdoors.

Q. Now, under the various codes, this plate line that you have referred to here at the top, which you set open, in many cities or counties or states, they require that to be sealed, do they not, for fire hazard; specifically Los Angeles and Los Angeles County?

(Testimony of John H. Hollingsworth.)

A. Not with this type of vent. This type of vent is UL approved, with normally what we call a ventilated plate spacer. The operation of this type of vent, of necessity, requires of circulation of air down through that space.

Q. But do we not have to specifically here provide a seal here for what is known as the fire wall break? A. No.

Q. No? A. No.

Q. Do they do that in some places?

A. Yes; but not with this flue pipe.

Q. And you have never seen it in operation then as shown on the opposite page to which you have been pointing, where it is shown—I will mark it with an “A” and an arrow, [151] where it refers to the plate as being sealed and a vent placed in it.

A. I have never seen one operating like that, no. I don’t believe this shows the plate being sealed.

Q. Well, it refers to it being there in the literature.

A. I have seen devices like this drill used, but not in this particular application.

Mr. Lyon: I will offer this as defendant’s exhibit next in order in evidence.

The Court: Exhibit T for identification. Is there an objection?

Mr. Christie: No objection.

The Court: It may be received in evidence.

(The document referred to was received in evidence and marked as Defendant’s Exhibit

T.) [See Book of Exhibits.]

(Testimony of John H. Hollingsworth.)

Q. (By Mr. Lyon): Now, Mr. Hollingsworth,—

Mr. Lyon: I would like Exhibit 21, please, if I may have it, Mr. Clerk.

(Whereupon Exhibit 21 was handed to counsel by the clerk.)

Q. (By Mr. Lyon): Now, Mr. Hollingsworth, on Exhibit 21 you have indicated a Holly heater, have you not? A. Yes.

Q. And you have described that the air to operate the [152] secondary heater exchanger—in other words, the air that passes through the annulus to cool the vents enters that annulus by the path marked by the blue arrows on that chart, have you not? A. Yes.

Q. And that air all enters the annulus of the secondary heat exchanger, such as Exhibit 20-A, from between the wall, or the wall studs and the back or the sides of the lower heater, Exhibit 20-B, does it not? A. Yes.

Q. No other air enters that annulus?

A. No.

Q. Now, if this back space between the lower heater box and the wall, or the studs, was blocked, what would the effect be on the efficiency of the Holly heater?

A. The efficiency would be slightly reduced. There would be other effects that would be much more serious; wall temperatures would be bad.

Q. Would the wall temperatures go way higher?

A. Oh, yes, I believe so; because you would no

(Testimony of John H. Hollingsworth.)

longer have the air circulating in this device that is provided to keep the walls cool.

Q. In other words, this air coming up the back here is used to cool the walls?

A. That is the primary function, yes. [153]

Q. Now, you state that you have made tests on the defendant's exhibits, Exhibits 24 and 25, and you have stated that the air for the operation in the annulus of the economizers, Exhibits 24-B and 25-A comes from between the walls and the heater, and you have so indicated that on Exhibit 21 by the blue arrows, have you not? A. Yes.

Q. Now, why didn't you show that air enters at the point on Exhibit 21 that I am going to make by a pencil mark and an X (indicating)?

A. It is shown with these green arrows, and it was described in the testimony.

Q. You did not describe it as entering the annulus, did you?

A. I believe I did. However, I am only going on recollection. If it enters there, it is implied. That is the only place——

Q. Does it enter the annulus? A. Oh, yes.

Q. Now, does not the air entering at the point I have marked X, which is the open grille that I will now point out to the court on Exhibit 24-A, as as indicated by the Nos. 7 and 8, doesn't the point X refer to these two grille openings? A. Yes.

Q. Now, doesn't that air do the cooling of the second [154] radiator of the defendant's device?

A. Well, to whatever extent air is drawn in there

(Testimony of John H. Hollingsworth.)

and goes up to the annulus, yes, that contributes to the cooling.

Q. Will the efficiency of the defendant's device go up or down if the wall space is plugged so that no air can come at all, can come up the back and into the secondary heater?

A. I haven't tested it. I wouldn't know. I would assume on particularly the 4-foot economizer that it would. I say that because the 4-foot economizer is the one which draws a very substantial and large percentage of its air into the economizer from out behind the box. [155]

Q. Have you ever measured the volume that went through any of the defendant's economizers, the volume of air?

A. The volume?

Q. Yes. A. Of air?

Q. Yes. A. No, not by volume.

Q. Then how do you know what comes out of here, out of the secondary—strike that.

Then how do you know what volume of air comes out of the economizer?

A. By observing tests that Landsberg ran with a tracer gas and a detector.

Q. And that is the only way you know?

A. That is the only way that I know quantitatively. I know qualitatively by many tests, and by being thoroughly familiar with this art, that there is a very substantial amount.

Q. How did you measure that amount? You say you never measured it. How do you know it?

A. By the tests that Mr. Landsberg ran I know

(Testimony of John H. Hollingsworth.)

it quantitatively. By the tests that I ran I know it qualitatively.

Q. Will you give us the tests that you ran?

A. Yes. I ran tests with a wall structure which was [156] glass-backed behind the first box so that I could observe the space between the first box and the wall; and I have run smoke up through that section, and I know that there is a substantial movement of air up around the back of the first box into the economizer.

The Court: You made a test to determine relatively how much enters from the front, the vent on the front?

The Witness: I did not run those tests personally, your Honor. Mr. Landsberg ran those with a tracing gas.

The Court: The vent on the front that I refer to would be Exhibit 24-A, would it not?

The Witness: Yes.

Mr. Lyon: Yes, your Honor.

If your Honor please, I would like this witness to confine himself to tests that he made, rather than Mr. Landsberg, because I understand Mr. Landsberg is going to be here and there is no use cross-examining both gentlemen as to what he did.

The Court: Very well.

Mr. Lyon: So I am asking this witness to confine himself to the tests that he made to determine that there was any air coming out of the economizer upper grille.

(Testimony of John H. Hollingsworth.)

The Witness: Determine if any air came out of there?

Q. (By Mr. Lyon): That's right. Did you ever make a determination? [157]

A. Sure, there is air coming out there.

Q. How do you know?

A. I have watched it carry smoke particles.

Q. How did you insert those smoke particles?

A. I inserted them at the base of the heater and watched the smoke flow up the back of the heater and into the economizer and out the grille.

Q. Will you explain to us where you inserted the smoke?

A. In many spots at the base of the heater.

Q. If I insert smoke in here, it is going to come out the top of the economizer, isn't it?

A. Yes.

The Court: Insert it in the front or the back?

The Witness: In both spots, your Honor.

Q. (By Mr. Lyon): Whereabouts now, will you please refer to Exhibit 24, or any of these exhibits, and show us where you inserted the smoke that you say you saw come out of the economizer?

A. I inserted smoke at the floor level immediately in front of the entrance opening provided at the base of the panel Exhibit 24-A. I further explored with smoke the whole lower area at the base of the heater with smoke—

Q. Will you point to the position and tell us right where you put the smoke, not just some area?

A. I put the smoke in many areas. I put the

(Testimony of John H. Hollingsworth.)

smoke in almost every area at the base of the heater along the floor level on which the heater rests, and observed smoke in varying degrees, depending on where I placed the wand, coming up behind the heater and going up into the economizer and out the grille.

I also placed smoke at the sides of the heater and observed the same thing.

I, further, to confirm again what I was observing, I placed smoke wands slightly above the bottom of the lower box, between the box and the wall, so that I knew that it was directly in the conduit that was provided there. And I further observed smoke traveling upward behind the box and into the economizer and out the grille.

Q. And all that smoke went up through the economizer?

A. Not necessarily. Some of it goes through the ventilated header plate, which is at the base of Exhibit 24-B, ventilation being provided by these holes on the header plate. That smoke went up into the stud space and into the attic.

Q. Now, how much of that smoke went up the attic and how much came out of the economizer?

A. I never measured that.

Q. You don't know whether that is half, a tenth, or five per cent?

A. Of the total smoke that was coming up behind the [159] first box?

Q. That you inserted into the machine.

A. No, I don't know qualitatively how much it

(Testimony of John H. Hollingsworth.)

was. I know approximately, by observation, that it was smaller portion of the smoke that was coming up behind the first box.

Q. Have you ever measured the rate of flow up behind the first box?

A. No, because that would be almost impossible to do accurately.

Q. Have you ever estimated it?

A. Estimated the rate of flow?

Q. Yes. A. Yes.

Q. What was your estimate?

A. In terms of—

Q. Cubic feet per minute?

A. I don't recall. I would have to look into my test records to find that.

Q. Would you do that for us before tomorrow?

A. Sure.

Q. It is important that we have that answer.

Isn't it a fact, Mr. Hollingsworth, that the air around the back and sides of the defendant's structure does not go where you have directed with these crooked blue arrows, but the majority of it passes straight up behind both the heater [160] and the economizer and into the attic?

A. No. First of all, I think we have to differentiate between the three-foot and four-foot economizer as to the degree of which it goes into the attic. One has a ventilated header plate, and the other has essentially a sealed header plate. Which one would you want me to talk about?

Q. You talk about either one of them. You dis-

(Testimony of John H. Hollingsworth.)

tinguish. I asked you the question, doesn't the air go up, and you have left that out entirely from this drawing, the flow of air up the back and out into the attic, have you not? A. Yes.

Q. And that has no effect on the operation of these heaters?

A. It has very little. It is a very minor effect.

Q. There would be——

A. It provides a little additional cooling up in the wall structure area, yes. That is the reason it is used. That is why a ventilated header plate is used. It helps to keep the temperatures down in the confined stud space.

Q. But——

A. But in terms of the basic operation of the heater and the air flow through it, and the gas flow through it, it is not particularly significant.

Q. Then is it also your testimony that the air entering the economizer through the opening X is insignificant? [161]

A. No. That is not insignificant, not at all.

The Court: Then opening X through the front——

Mr. Lyon: Opening 7 and 8 on Exhibit 24-A.

The Court: That is from the front side?

Mr. Lyon: That is intermediate level in front into the economizer.

The Court: On the front side of the lower radiator?

Mr. Lyon: On the front side at the top of the lower radiator.

The Court: Yes.

(Testimony of John H. Hollingsworth.)

Mr. Lyon: That's right.

Could you answer the question? I didn't hear it.

Did he answer it, your Honor?

The Court: I understood there was an answer.
Is there a pending question, Mr. Reporter?

(The following question and answer were
read by the reporter:

"Q. Then is it also your testimony that the air entering the economizer through the opening X is insignificant?

"A. No. That is not insignificant, not at all.")

Mr. Lyon: Thank you.

Q. (By Mr. Lyon): Now, are you sure that you have yet told us all of the major operations of this heater? [162]

A. Major operations of the heater?

Q. Yes.

A. To the best of my knowledge I have, yes.

Q. All right. I call your attention to Exhibit 24-A, and upon that exhibit is a mark "10" and above that is a small grille.

A. Yes.

Q. Have you described the operation of that outlet or inlet, whatever it is?

A. No.

Q. That has no operation, no function in this heater?

A. The function of that grille, as I understand it, as I would interpret it, is to allow some air to bleed off and escape, which is coming up in the

(Testimony of John H. Hollingsworth.)

space between the box and the side of the panel, which further protects the walls.

Q. Isn't it a fact that that is also a bleed-out that is used by the defendant to get rid of the hot air coming—any possible hot air coming up outside of the box between the wall and the studs?

A. I wouldn't believe so, no.

Q. Now, when you make a smoke test, haven't you seen heavy smoke, when you put it in the back, between the wall and the back of the box, haven't you seen heavy smoke coming out at 10?

A. No, I don't recall having observed heavy smoke coming [163] out of 10, not at all. I have observed smoke coming out of 10, yes. But in the manner in which you have asked the question, I would have to answer no.

Q. When you put the smoke in at the back of the lower box between the wall and the box, does not smoke come out into the attic, for one place, and a very heavy amount, and also out of these openings 10 on each side of Exhibit 24-A?

A. When I placed the wand between the back of the box and the wall on the four-foot economizer, I could always observe smoke coming out in the space that goes into the attic, depending on where I might put the wand I could see smoke coming out of those side louvres on Exhibit—

The Court: The question, as I understand it, is when you put it at the base of the lower box in the back, do you see smoke come out of those spaces 9 and 10 on the trim, which is Exhibit 24-A?

(Testimony of John H. Hollingsworth.)

The Witness: I was trying to qualify my answer, your Honor, in this respect: That I always see smoke coming out in the attic. I sometimes see smoke coming out of the side louvres, depending on the particular position that the smoke wand might be placed behind the box. If it is more nearly around the side of the box I will see smoke. I don't recall ever having seen smoke coming out the side louvres when the wand was placed directly in the center of the back of the wall. [164]

Q. (By Mr. Lyon): Now, Mr. Hollingsworth, defendants took some depositions in Wichita, which you attended, did you not? A. Yes.

Q. And at that time they made in your presence smoke tests on heaters, Coleman heaters, that were similar to these in evidence, did they not?

A. Yes.

Q. And they took photographs of those tests at the time?

A. I don't recall that they were taken at the time. I think the photographs were taken prior to the tests. * * * * *

Mr. Lyon: If your Honor please, in the last session we had, that is, when we began today, up until now the clerk calls my attention to the fact that I have been calling two exhibits by one number, and I would like to correct the record and show, where I referred to Exhibit 20-B I refer to both Exhibits 20-B and 20. I was referring to the entire lower heater, and 20-B is only the outer grid, and 20 is the heater itself. [165]

(Testimony of John H. Hollingsworth.)

The Court: Very well.

Q. (By Mr. Lyon): On these smoke tests that you have seen made, haven't you noticed that smoke comes out of the outlets 10 of Exhibit 24-A and enters the grilles 7 and 8 on Exhibit 24-A?

A. Yes, I have.

Q. Now, wouldn't that explain some of the smoke coming out of the economizer outlet?

A. That wouldn't explain the smoke coming out of the economizer outlet if the source of smoke were at the base of the heater behind the lower box.

Q. Why not? You see the smoke coming out of here and going into the economizer, how do you know that that isn't the smoke coming out of the economizer, rather than that that comes up the back?

A. I think I know that quite well, because the smoke tends to diffuse fairly rapidly, and I have never been able, myself, to detect any smoke that comes out of the side louvres of Exhibit 24-A and re-entering the top louvres of Exhibit 24-A. There might be a small amount that was doing that, which under just the proper conditions might be observed, but certainly I could not see any of that smoke coming out of the grille of the secondary heat exchanger by the time that it had traveled that extra distance.

Q. Can't the hot air or gases, or anything else coming [166] up the back and sides around the defendant's heater come right out those grilles, is there anything to stop them?

(Testimony of John H. Hollingsworth.)

A. I would doubt seriously whether any smoke coming up the back would come over and out there, although that I don't know absolutely. Smoke coming up the sides of the heater box will go out there, yes.

Q. Just referring back to that Metalbestos, Exhibit T, when they put that on a heater do they use draft hoods between the heater and the Metalbestos?

A. Yes, there is a draft hood on each appliance. Any gas venting appliance, normally where the vent is attached directly to the top of an appliance that does not have a second box or a secondary heat exchanger, it would attach to the top of the draft hood.

Q. Isn't it a fact that draft hoods very similar to the draft hood in the defendant's heater and in plaintiff's heater are required by law on all heaters and have been for many years before any alleged invention of yours?

A. Oh, yes.

Q. Mr. Hollingsworth, before any invention of yours there were space wall heaters similar to these that we have discussed, the defendant's and the plaintiff's, that had radiators substantially similar to the lower radiator?

A. Yes.

Q. They had burners in substantially the same way, did [167] they not?

A. Yes. The whole first box assembly is quite similar to those that have been in use for quite some time.

Q. Long before any alleged invention of yours?

A. Oh, yes. We built them ourselves long before that.

(Testimony of John H. Hollingsworth.)

Q. They had the draft hood, they had the outer box, the burner, the radiator, the baffle in the back of the radiator between the back of the box and the radiator?

A. Yes, in substantially the same configuration that is on these.

Q. And on top of those they often put ventilated flue stacks such as the Metalbestos, Exhibit T?

A. Oh, yes.

Q. Now, isn't it a fact that they ventilated those flue stacks from the room very often?

A. From the room?

Q. Yes, sir. A. No.

Q. You don't know about that?

A. I would say no of my own knowledge, that that is something that was not very often done. It would be very rarely done, to the best of my recollection.

Q. Now, I will ask you, taking this Exhibit T—may I have it, please—if this device was hooked up, as you have said, to one of these exhibits, such as Exhibit 24, [168] would you not have air coming up the back of 24 flowing into the space where the Metalbestos was on top, and then that air flowing up through between the outer shell and the inner shell of the Metalbestos to cool that shell?

A. The combination where you would have a ventilated header plate, I imagine you could get that condition.

Q. You had ventilated header plates?

A. We never used them.

(Testimony of John H. Hollingsworth.)

Q. But there were?

A. Yes, they were used quite extensively.

Q. Will you explain to the court the difference between that construction that I have just described that you said has been used and the construction of the patent in suit, what element is different in the patent in suit than what you have just described?

A. The whole primary function of the elements of the patent in suit—

Q. I didn't ask about the function; I asked you about a specific piece of apparatus that is different than what you have described.

A. By that do you mean the physical shape?

Q. That's right.

A. Well, I think that the physical shape is substantially different.

Q. Will you tell us what it is, what difference there is, [169] please.

A. Yes. There is no opening provided in the annulus at the base of the flue pipe to receive air coming up around the box. There is no point of discharging—

Q. I beg to stop you one minute. What are the holes that I will mark in Exhibit T with an "X" with an arrow pointing to them? Those are not holes in the bottom to let that air into the annulus?

A. They are not holes that are connected with the passageway coming up behind the box. Those are holes provided to receive air coming down the stud space from the attic.

Q. But will not air enter from the bottom and

(Testimony of John H. Hollingsworth.)

enter that same space and flow up through there?

A. Only if I had a ventilated header plate there, and then it would be a very minor amount that might flow over into that area.

Q. Then, we would only have a minor amount that flows over in the defendant's box, would we not? He has a ventilated header and it is the only way it can get in there?

A. He has a full opening annulus on the four-foot heat exchanger, and he has a very substantial opening to that annulus on the side on the three-foot heat exchanger. These holes are holes on the order of a quarter or half-inch in diameter, and there are four or five of them shown along [170] the base of this jacket here.

The Court: Your last reference is to Exhibit T?

The Witness: In Exhibit T.

Mr. Lyon: I warn the witness now that I am going to produce a piece of Metalbestos, and I can tell him now that the openings are a lot larger than he is referring to, and they are bigger than the opening in the defendant's structure.

The Witness: I was judging the size of the opening from the drawing and from my recollection of some pieces of Metalbestos.

Q. (By Mr. Lyon): All right. Assume that they are on the order of the same size of the opening in Defendant's structure, what would be the difference in operation between the two?

A. Then I would have to know what the size of

(Testimony of John H. Hollingsworth.)

the openings were in the ventilated header plate, because that would control.

Q. Well, if they are the same as they are in Exhibit 24.

A. There are no ventilated openings in Exhibit 24.

Q. All right, then. In Exhibit 24-B. These holes that I point to right here are what you call the—at the very bottom of Exhibit 24-B—are what you call the ventilated header?

A. Yes. Those holes are approximately three-quarters [171] of an inch in diameter, and there are four of them.

Q. Four holes?

A. (Continuing): And that would be substantially less than the area that is provided in the secondary box on any of these exhibits.

Q. But that is how the air gets through into this—this air that you claim comes up the back gets into the economizers, isn't it? A. Oh, no.

Q. Will you explain how it gets through otherwise?

A. Through the holes that I refer to in the ventilated header plate, it does not come through there.

Q. Where does it go through those?

A. It goes into the attic through those through the stud space.

Q. All right. You are getting air, though, in Exhibit T from the back up through the annulus of your ventilator flue stack, aren't you, in Exhibit T?

(Testimony of John H. Hollingsworth.)

A. I would say no, because there is apparently no ventilated header plate here.

Q. You have stated that they were used **with** ventilated header plates.

A. Under conditions where a ventilated header plate was used, as I stated before there could be some air that would move through the holes provided in the ventilated header [172] plate that came from behind the box, and that some portion of that air could enter these holes at the base of the jacket of the vent, yes.

Q. Then the only difference in operation between Exhibit T and the patent in suit is the fact that Exhibit T has no outlet to the room from the annulus?

A. Oh, no, that is not the only difference, not by any means.

Q. Will you give us a physical difference?

A. Operationally it is substantially different in this respect, as I think I have pointed out in the patent, this device noticed in conjunction with the draft hood that controls the amount of dilution air——

Q. Isn't that merely not a mechanical difference, but a difference merely in degree of the size of operation, and so forth?

A. No. That is a functional matter that is **very** important.

Q. Yes, but isn't it a matter of merely degree of difference between the two, they both take air in the

(Testimony of John H. Hollingsworth.)

same place, they both run it through the same way, they both get it from the same source?

A. I would say——

Q. And you enlarged the openings is what you are trying to tell us, so that you got more flow, but that was just an increase of flow?

A. Oh, no. I think you are taking single portions of the element in this claim and relating them to this, and——

Q. I am not asking him——

The Court: To “this” is Exhibit T?

The Witness: Exhibit T.

Mr. Lyon: I am asking him about the physical description that he has made of this, and not what he is claiming.

The Court: You are really asking an argumentative question. As that question stands he is entitled to argue his answer.

Mr. Lyon: But I am not asking him about the claim at all; I am asking him about the description of the patent in suit.

Does that not describe the same thing here except the size of the openings?

The Witness: I don’t believe so. [174]

Q. Well, what physical part is different?

A. The size is different of the flue pipe in Exhibit T as compared with the secondary heat exchanger. The holes that are provided for ventilation are different. The fact that there is no discharge opening into the room from Exhibit T—there are a considerable number of physical differences.

(Testimony of John H. Hollingsworth.)

Q. Have you stated them all?

A. No. There are more that relate to the heater itself; the draft hood and the fact that the top of the annulus in the vent pipe is not sealed off, but rather is open out to the attic or outdoors.

Q. Well, that comes back to the fact that you didn't have an opening into the room then.

A. That's one of the points. As I attempted to describe here, there are several others.

Q. Well, have you not told us that draft hoods, similar to these radiators, similar to these——

A. Only in appearance, not in function.

Q. ——boxes; and boxes were on the market and sold regularly before you designed this device?

Mr. Christie: We have been very lenient in this matter, but it seems that it has gone way beyond the course of the direct examination. He is now asking questions which bear not on the question of infringement but on the question of validity, and we object to any further line of cross examination[175] in this direction, until the witness has testified on the question of validity and on the aspects of the patent which are now being discussed.

The Court: Overruled.

You are referring now to the physical aspects, is that your answer, physical appearance of these various——

The Witness: The physical appearance of these various units is quite similar, but the functional aspects are substantially different.

Q. (By Mr. Lyon): Now, are these necks that

(Testimony of John H. Hollingsworth.)

are shown in Exhibit 20 described in the patent in suit? A. No.

Q. There is no constriction of the lower radiator in the patent in suit, is there?

A. It is implied.

Q. Would you please show us where it is implied?

A. Well, first of all, to anyone that is familiar with the art, it would be implied without having said it because it is a necessary part of the design of the appliance, to provide some constriction at the upper end of the first radiator in order to have the heater function properly in order to maintain some control over the gas-air mixture in the first radiator.

Q. But it is not stated in the patent, is it?

A. Not specifically, no, sir. [176]

Q. Not even referred to?

A. No, sir. I wouldn't consider it necessary to refer to that. Reference to the draft hood would imply that.

Q. You mean that is part of a draft hood?

A. In its function.

Q. Those necks are part of the draft hood?

A. In one of the functions of the draft—let me rephrase that. Referring to one of the functions of the draft hood, as they are designed on these appliances, yes, it would be a part of the draft hood. One of the functions of a draft hood, as they are normally designed on the appliance exhibited in Exhibit 24, is to provide some control through restric-

(Testimony of John H. Hollingsworth.)

tions over the rate of flow through the first radiator, or in order to maintain control over the amount of air that is drawn into the bottom of the radiator and mixed with the gas and burned; and those tubes partially perform that function, in conjunction with portions of the draft hood which are helping to perform that function.

Q. Would you accept the definition of the A.G.A. of what a draft hood is?

A. In part I would. I think, as I mentioned, that the draft hood as shown in Exhibit 24 has some other functions than the one that would be defined in the A.G.A. I am very familiar with that definition.

Q. Where can you point out to us in the literature, or [177] anything else, that a constriction is necessarily or advantageously used between the draft hood and the radiator?

A. Well, I can point to one on your own—or on Exhibit 24, which is this member right here (indicating). That member was put in there to provide some control over the gas-air mixture flowing up to the first radiator.

The Court: You are referring to what has been previously referred to as the neck?

The Witness: To a portion, and a baffle or restriction which has been added to the neck of the first radiator shown in Exhibit 24.

Q. (By Mr. Lyon): When was this heater, Exhibit 20, manufactured? A. This specific one?

Q. Yes.

(Testimony of John H. Hollingsworth.)

A. I don't know exactly. I would have to look at the serial number and check our company records.

Q. Have all of the Holly heaters been manufactured with the necks as shown in Exhibit 20?

A. Those manufactured with secondary heater exchangers, yes.

Q. Since the first ones?

A. Yes. A neck of some sort has been used on every one of them, as I recall.

Q. And the draft hood wouldn't function without those necks?

A. Oh, no, I didn't say that.

Q. You say they are part of it.

A. I say, functionally, that they provide a source of constriction on the first radiator in the same manner that that portion of the draft hood performs that function; further, they are part of the draft hood in this sense, that they direct the flue gases into the draft hood in such a manner that the draft hood can be designed to function properly.

Q. Now, Mr. Hollingsworth, it is your opinion one of these heaters constructed identically with Exhibit 20 would meet the description of the patent in suit when it was installed in a wall formed with expanded metal and plaster?

A. The physical appliance would, yes.

Q. It would?

A. The installation would have no bearing on the physical appliance and the way—

Q. How could it operate in the manner of Exhibit 20 then?

(Testimony of John H. Hollingsworth.)

A. It wouldn't operate in the manner that the patent discloses.

Q. It couldn't operate in the manner of the patent in suit, could it?

A. Oh, yes, it could operate, but not as effectively. [179]

Q. Well, I call your attention to a document here which is entitled "Instructions for Installation and Operation of Holly Narrowall Recessed Heaters (S & D Series)," and it states herein, and I will read it to you——

The Court: Is that an exhibit here?

Mr. Lyon: No, it is not. I just want him to identify it.

Q. "Do not use metal lath which allows plaster to squeeze through and touch the Secondary Heat Exchanger. No insulation or sheet metal is needed to protect the walls from the Heater or Secondary Heat Exchanger. Use of insulation will block air passages around the heater and void A.G.A. approval."

Now, that machine could not, under this description, operate in the manner that you have described, Exhibit 20, could it, if you had those plaster keys?

A. Yes. It could operate in that manner.

Q. Where is it going to get the air that cools the secondary heat exchanger?

A. From up the box sides, between the box and wall; and in addition to that you must remember that the heater is provided with spaces on the back

(Testimony of John H. Hollingsworth.)

of it, both the Holly, Exhibit 20, and the Coleman, Exhibit 24, and the Coleman, Exhibit 25—in fact, any conventional wall heater is provided with spaces on the back of the box to provide spacing from the [180] wall to insure air movement up the back of the box behind the box to keep the wall cool. The walls are plastered before the box is put in so that any plaster keys that are projecting through would be there at the time it was installed, and the spacers behind the box would interfere and provide the space.

Q. I will hand you the document I have been referring to and ask you if that is not a photo-static copy of the instructions of the plaintiff?

A. Yes, sir.

Q. And does that not state that this device would be inoperative if so used?

A. No. It doesn't state that. It states it would void the A.G.A. approval.

The Court: Do you wish it marked?

Mr. Lyon: I will offer this exhibit in evidence as defendant's exhibit next in order.

The Court: Any objection?

Mr. Christie: No objection.

The Court: Exhibit U, is it?

Mr. Lyon: Yes, your Honor.

The Court: Exhibit U is received in evidence.

(The document referred to was received in evidence and marked as Defendant's Exhibit U.)

[See Book of Exhibits.]

(Testimony of John H. Hollingsworth.)

The Witness: If I might explain why we state this, we say "do not use metal lath which allows plaster to squeeze [181] through and touch the secondary heater exchanger." That is because of the thermo contact that you get between the secondary heat exchanger jacket, the second box and the wall, which would raise the temperatures on the wall.

Q. (By Mr. Lyon): That is not the part that I was reading. A. You read that.

Q. But I am talking about—it says not to use this heater with that type of construction.

A. It says here in this separate paragraph—or, perhaps it isn't a separate paragraph—"air passages around the——"

Excuse me. It says, "use of insulation will block air passages around the heater and void A.G.A. approval," and that is correct. The reason that has been put in there is because we have found by experience in the field that certain installers have the concept that insulating material is a better insulator than an air passage. They are, of course, much mistaken. Still it is a concept they have. We have found that they have completely enclosed the space between the heater box and the wall with insulating material, and that of course affects the operation of the appliance, and it voids the A.G.A. approval, because any alterations to the appliance voids the A.G.A. approval. We attempt to emphasize, or to eliminate any tendency on the part of the installer to [182] put insulation in in that man-

(Testimony of John H. Hollingsworth.)

ner by strongly stating it voids A.G.A. approval, which is important to him.

Mr. Lyon: I think that is all of this witness.

The Court: It affects his insurance? It affects the warranty? Why is A.G.A. approval important to him?

The Witness: Because in any municipality, for example the city of Los Angeles, an appliance cannot be installed unless it has been approved by a nationally recognized testing agency, which is the American Gas Association, and anything that would void that approval makes the heater illegally installed.

* * * * *

Redirect Examination

Q. (By Mr. Christie): Mr. Hollingsworth, you have testified that you computed the cross-section of the radiators, the lower radiators, Exhibits 24 and 25, which are, I understand, the same radiator, without computing, without using the volume of the neck as part of it. Have you also made any computations as to what the cross-section is, the mean cross-section when the necks are included?

A. Yes, I have made some approximate computations on [183] that; not accurate to the extent that these other computations were made, but the area of the first radiator would still be substantially larger than that of the second radiator in cross-section even if the tubes were included.

Q. Do you have any figures for that?

A. Not with me, no, I don't.

(Testimony of John H. Hollingsworth.)

Q. What would you say with respect to the Holly heater if in computing a mean cross-section you included the tubes, which in Exhibit 20 are marked "wax"?

A. It would alter the ratio of difference of cross-sectional area between the first and second radiator, but the first radiator would still be larger than the second radiator.

Q. In cross-section? A. Yes.

Q. Horizontal cross-section? A. Yes.

Q. And have you made any calculation of that?

A. Yes.

Q. And do you have those here?

A. No, I don't.

Mr. Christie: In order to proceed, I wonder if we might have leave of the court to have Mr. Hollingsworth produce those later, perhaps on Tuesday?

Mr. Lyon: Your Honor, I will offer a stipulation that [184] the mean cross-sectional area of the heaters of both are smaller than the mean cross-sectional area, or larger than the main cross-sectional area of the second radiator; if that is sufficient.

The Court: That is, both plaintiff and——

Mr. Lyon: Even if he includes the necks in that mean area.

The Court: Neck and tubes?

Mr. Lyon: Neck and tubes, yes.

Mr. Christie: Do I understand you to say, Mr. Lyon, that you are willing to stipulate that the mean

(Testimony of John H. Hollingsworth.)

cross-section of the lower radiator in both plaintiff's and defendant's devices is larger than the mean cross-section of the upper radiator of the secondary heat exchanger even when the tubes are included?

Mr. Lyon: That is right. But I do not want the court to understand that I am stipulating that the cross-section at any point is less or greater.

The Court: You are referring to the mean or average cross-section?

Mr. Lyon: That is right, strictly the mean.

The Court: Very well. Now, that stipulation applies both to the Coleman heater, the defendant's Coleman heater, and the plaintiff's Holly heater?

Mr. Lyon: That is right, your Honor.

The Court: Is that your understanding, Mr. Christie? [185]

Mr. Christie: That is my understanding.

The Court: Then the degree of difference, I take it, is not important, just the fact that the lower is larger than the upper?

Mr. Lyon: I don't believe there is anything in the patent that says any degree of difference, your Honor, so——

Mr. Christie: This is argument, your Honor, by counsel on the other side. We would prefer to go into this matter of the degree of difference, and its importance on the question of validity, which is really part of our rebuttal.

The Court: Very well.

Mr. Christie: Mr. Hollingsworth, I believe that

(Testimony of John H. Hollingsworth.)

Mr. Lyon referred to certain A.G.A. tests as to the method of determining thermal efficiency.

I would like to have a booklet which is called "American Standard Approval Requirements for Central Heating and Gas Appliance, Volume IV," marked for identification as plaintiff's exhibit next in order. I believe it is——

The Clerk: 32.

Mr. Christie: 32.

The Court: It will be so marked.

(The booklet referred to was marked as Plaintiff's Exhibit No. 32 for identification.)

The Court: Do you offer it in evidence?

Mr. Christie: I am going to ask Mr. Hollingsworth to [186] identify it first, your Honor, if I may.

Mr. Lyon: I have no objection to it going in evidence.

The Court: Is it stipulated to be genuine in all respects what it purports to be?

Mr. Lyon: That is right.

Mr. Christie: Then I will offer it in evidence.

The Court: Plaintiff's Exhibit No. 32 for identification is received in evidence.

(The booklet referred to was received in evidence and marked as Plaintiff's Exhibit No. 32.)

[See Book of Exhibits.]

Q. (By Mr. Christie): I call your attention particularly, Mr. Hollingsworth, to the section on page 23 entitled "2.9 thermo efficiency," and ask

(Testimony of John H. Hollingsworth.)

you if that is the test of thermo efficiency which you referred to in your cross examination?

A. That is one of the tests of thermo efficiency that I referred to, yes. [187]

Q. And what other test did you refer to, Mr. Hollingsworth?

A. These tests are the requirements effective January 1, 1954. Earlier requirements provided a test procedure which was slightly different for taking thermo efficiency.

Q. How did that test procedure differ, if you know?

A. The test procedure differed in this respect: that the procedure prior to 1954 was to attach a four-foot length of vent to the top of the appliance, irrespective of the appliance height, and flue temperatures were measured with a vent of that height. The requirements that you have handed me here, Exhibit 32, which are the later requirements, require that the vent height be such that the top of the vent is 12 feet above the test floor.

Q. Do you know of your own knowledge how these changes and requirements for thermo efficiency tests came about?

A. Yes, I do. I am a member of the Advisory Panel for Ventilated Recessed Heaters, which does most of the initial groundwork in writing these requirements. The change in vent height the test procedures, was a result of our discovery which is disclosed in the patent, that the efficiency was seriously affected by vent height on conventional ap-

(Testimony of John H. Hollingsworth.)

pliances at that time. And it was on that basis. And on the further basis of requirement research investigations that were run by the American Gas Association to [188] determine the effect of vent height on efficiency, that these requirements were changed.

Q. What is the effect of vent height upon efficiency?

A. Vent height changes the draft that is available within the vent——

Q. By “vent,” do you now mean flue or chimney?

A. I mean flue or chimney. The height of the flue or chimney affects the total draft or the chimney action that exists in the flue, by virtue of its height. That, in turn, will affect the amount of dilution air that is drawn into the relief opening of the draft hood. I believe, as I described earlier, one of the functions of the draft hood is to negate any effective draft in the flue—negate it in the flue in the combustion zone of the appliance, and that it does by drawing in air through the relief opening of the draft hood. Therefore additional vent height which produces—or additional flue height which produces additional draft also produces additional dilution at the draft hood relief opening. This being normally located in the area of the warm air discharge from the appliance, it draws heated air from the room in substantial enough quantities and discharges them out through the flue to affect the efficiency seriously.

In fact, it affects the efficiency on the order of

(Testimony of John H. Hollingsworth.)

one per cent for each added foot of vent height above the four-foot [189] height that was used in the earlier test procedures.

Q. You have just made reference to the function of the draft hood. In the patent in suit do you find any reference to the function of the draft hood? Is it described there? A. Yes.

Q. And if so, will you read what the patent says about it and identify the column and lines?

A. Column 3, line 54:

“The function of the draft hood or diverter in the device of the invention is to stabilize draft conditions existing within the lower radiator regardless of variations in draft conditions above it. This is accomplished by placing suitable baffles in the draft hood (so as to direct the flow of gas properly) and by the vent which provides a source of relief air.”

The vent referring to what I have been previously calling the relief opening.

“The draft hood does not control the draft action established within the flue by only its effect on the combustion zone in the lower radiator.

“Draft in a flue may be controlled satisfactorily and safely in many instances by a damper. They have been used for many years in the flues [190] of fireplaces. Adjustable dampers, however, are not satisfactory in the flue of a gas-burning device, because of the possibility of asphyxiation. Recognized testing agencies and governmental bodies condemn

(Testimony of John H. Hollingsworth.)

them, and they are forbidden in many places by building codes and ordinances."

Q. Do you make any reference in the patent in suit at any point to any further instruction as to how to proportion the horizontal cross-section of the upper radiator with respect to the horizontal cross-section of the lower radiator?

A. Yes, I do.

Q. Would you identify the place and read it, please?

A. It might take me a moment to find it.

Yes. It is line 75, column 3.

Q. What do you say there?

A. "Frictional resistance to laminar flow is essentially proportional to the velocity of such flow. But under conditions of turbulent flow resistance to flow is more nearly proportional to the square of the velocity. Consequently, if the horizontal cross-section of the upper radiator is constricted, preferably until turbulent flow conditions obtain, a large increase in draft, say due to a tall chimney or a high wind, will have a [191] minimum effect at the draft hood below the radiator. Hence the suction at the relief opening of the draft diverter tends toward a constant value. If the system is designed so that it barely draws in air through the draft hood with a short flue (say one four-feet high) it will pull only a slightly greater proportion if the flue height is increased. Loss of heat by leakage through the draft hood into the second radiator may thus be held at a low figure even if the wall

(Testimony of John H. Hollingsworth.)

heater is installed with a flue system that creates excessive draft, and heating efficiency is thereby improved.

“In other words, the cross-section of the second radiator is chosen so that as a conduit it will just handle the maximum products of combustion to be conducted in the first radiator, with scarcely any dilution through the draft hood. With such a design, a marked increase in draft will produce a minimum increase in draft at the base of the second radiator, and hence a minimum increase in dilution through the draft hood.”

Q. Now, did you illustrate that effect at any point in the patent?

A. Yes, Figure 6 of the patent illustrates that.

Q. Will you describe what Figure 6 is?

A. Figure 6 illustrates the effect of flue height on efficiency. The curve denoted “Heater A” on the graph refers to conventional wall heaters. By “conventional” I am speaking of those that do not have the device disclosed in the patent.

Heater B is the heater in suit, Exhibit 24.

Q. Did you mean that?

A. Exhibit 20. Excuse me.

To state it another way, Heater A might represent the wall heaters produced by Holly Manufacturing Company prior to use of the secondary heat exchanger. Heater B would illustrate the wall heater with the secondary heat exchanger designed—built in accordance with the patent. This illustrates that the efficiency loss due to flue height ma-

(Testimony of John H. Hollingsworth.)

terially affects heaters of conventional design, but has only a small effect on a device with a secondary heat exchanger.

Q. Referring to Defendant's Exhibit T, and particularly to the page which I believe is the front of the exhibit—excuse me, your Honor. May I ask Mr. Lyon which is which?

Let me have the original of Exhibit T.

The Witness: I have it here.

Mr. Lyon: Mark the page, please, that you are referring to, because it doesn't show which is the front or back. [193]

Mr. Christie: I will mark the surface to which I am now referring as "Front."

The Court: The front of Exhibit T?

Mr. Christie: Front of Exhibit T.

And particularly to the diagram appearing in the lower left-hand side, and I ask you to explain to me what the arrows show with respect to the flow of air in and around the Metalbestos flue.

The Witness: The arrows illustrate that air is drawn from the attic into the stud space in which the flue is confined, downward to the base of the flue, and then into holes provided in the side of the outer jacket of the flue, and then upward through the annulus provided by the inner flue pipe and the outer jacket, and upward out through the flue.

Q. (By Mr. Christie): Now, is this the flow that is contemplated in the secondary heat exchanger of the patent in suit?

A. No, it has no bearing on that flow.

(Testimony of John H. Hollingsworth.)

Q. What is that flow, as distinguished from this one that we have seen on Defendant's Exhibit T.

A. That flow differs from this in that it is, first of all, air drawn from the heated space in the room near the floor level and upward behind the heater and into an opening provided at the base of the secondary heat exchanger, which [194] is completely separated from that space communicating with the attic, and then upward in the annulus of the secondary heat exchanger and back into the room. The flow through the device shown in Exhibit T is completely separate from the room.

Q. What happens to the heat that is carried up in the annulus of the Metalbestos flue?

A. Well, it is normally discharged outdoors. It could, under some installation conditions, be discharged in the attic.

Q. What effect would this have on the heat in the room?

A. It would have no effect on the heat in the room. Whatever heat would be recovered from the vent pipe due to that flow would be lost.

Q. So does this represent an increase or decrease in the thermal efficiency of the heater? By "this" I mean the flow up into the attic or into the ceiling, or into the outside?

A. As compared to the secondary heat exchanger it represent a decrease.

Q. Now, referring to the other side of defendant's Exhibit T, which I will mark "Back," and to the diagram appearing at the lower center, I notice

(Testimony of John H. Hollingsworth.)

that this shows a grille, which is marked, "Or ventilating louvres alternative," would you describe the action of the device that is shown in [195] this diagram at the lower center of the back?

A. That is the louvre that was marked "A" by Mr. Lyon?

Q. That is correct.

A. Yes, that device would provide some cooling to the wall surfaces by allowing air to enter from the room through the ventilation louvres, and then upward into the attic.

Q. How do you compare the flow through that louvre with the flow through the louvre or upper grille of the secondary heat exchanger of the Holly device or the device of the—any of the accused devices?

A. It would be completely opposite to the flow discharged from the secondary heat exchanger in the Holly device. It would be somewhat similar to the flow that exists in the upper half of the three and four-foot economizers of the Coleman device. It would differ there, however, in that the flow would not be within the stud space, but within the jacket of the economizer.

Q. Do the Coleman economizers let air out of the secondary heat exchanger into the room through the upper grille? A. Yes.

Q. And I understand your testimony to be that the upper grille in the Coleman economizer has two portions, a lower of [196] which let air out into the room, and the upper of which takes air out of

(Testimony of John H. Hollingsworth.)

the room back up into the stack or the attic, is that correct? A. Yes.

Q. What would be the effect on the efficiency of the thermal efficiency of the device of the louvre which is shown in the lower center on the back of Defendant's Exhibit T?

A. It would reduce the total heat input to the room by virtue of the fact that it would be taking heated air out of the room and putting it into the attic.

Q. What would be the effect of the upper portion of the grilles on the economizers in the Coleman devices?

A. It would be substantially the same effect.

Q. Now, what would be the effect of the lower portion of the grilles on the Coleman economizers?

A. They would contribute heat to the room.

Q. And I believe you testified that in the Holly device, Plaintiff's Exhibit 20-A, there is a flow into the room from the grille of the secondary heat exchanger, but not back from the room into the attic?

A. That is correct. The only flow is into the room.

Q. Mr. Lyon asked you what would be the structure resulting if you put the Metalbestos flue shown in Defendant's Exhibit T on top of a conventional wall heater as it existed as of the time that you say you made the invention? I wonder [197] if you would be good enough to draw what the result of that combination would be, and explain to me how it would operate?

(Testimony of John H. Hollingsworth.)

A. This I will mark "Metalbestos Flue."

Mr. Lyon: Why don't we just put a letter or number instead of having to write a lot of legends on it?

The Witness: I don't think I will need to write many. I just wanted to identify the flue and the heater.

Mr. Christie: The lower box?

The Witness: The heater lower box, yes. The device would operate in this manner: that air drawn in here (indicating)——

Mr. Christie: Please identify it.

The Witness: At the floor of the——

Mr. Lyon: Can't we have a colored pencil to show that flow?

The Witness: I will use a pen.

Mr. Lyon: All right.

The Witness: The blue arrows, which describe the flow, consistent with the other blue arrows that we have used in other previous exhibits, would flow up behind the heater box in the wall out over the top of the box into the room in those instances where the header plate was not of a ventilated type. Where the header plate was of a ventilated type some air would flow up through the ventilation holes into the stud space. In addition, air would flow downward, which I will [198] draw with a pencil, into the holes provided at the base of the Metalbestos flue, and thence upward in the annulus and out the vent. Air flowing through——

(Testimony of John H. Hollingsworth.)

Q. (By Mr. Christie): By the vent, do you mean——

A. Out the flue.

Q. Where would that go, eventually?

A. In most instances it would go out the top of the flue to the atmosphere. [199]

Q. Would it ever go into the room?

A. Never into the room. It might conceivably go into the attic. In addition, air would be drawn through the louvres that have been described in Exhibit T, probably.

Q. Mark the louvres, would you please, Mr. Hollingsworth?

A. Air would be drawn from the room through the louvres upward into the attic space, I would assume, because there would be some heat from the wall there. Air also would be drawn downward into the annulus provided in the Metalbestos.

Q. And then where would it go?

A. Which would then go again up and out the flue.

Q. Now, would any of the air coming up through around the back of the lower box come out through the louvres into the room, the upper louvres?

A. There would be no reason, through fluid mechanics, that I could see, that would make it do that.

Q. Do you know that there ever was such an installation as you have now drawn here on this paper?

Mr. Christie: And I will ask to have this marked in evidence as Plaintiff's Exhibit No. 33.

(Testimony of John H. Hollingsworth.)

The Court: Is there objection?

Mr. Lyon: No objection, your Honor; except it has been asked and answered once.

The Court: Received in evidence. [200]

(The document referred to was received in evidence and marked as Plaintiff's Exhibit No. 33.)

The Witness: In strict combination with the Metalbestos flue shown in Exhibit T, I have not seen it. However, the ventilated louvre as shown in Exhibit T, in combination with other vents, I have seen; and in the field of actual installations. And, also, I have made similar installations in the laboratory during test work.

Q. (By Mr. Christie): How did those installations work? Would you describe where that installation was and when you made it and how it worked?

A. The installation that I made provided two louvres rather than one.

Q. Would you draw a sketch of that so that that may be understandable also?

A. I will draw it.

Mr. Lyon: Your Honor, this line of testimony now is objected to if this man testifies to what he experimented on. I can't see how that has any materiality. If he is testifying that these were things of public knowledge, I have no objection to the testimony. But if they were secret experiments, or things in his laboratory, they are not material in this case.

(Testimony of John H. Hollingsworth.)

The Court: What would be the purpose of it?

Mr. Christie: The purpose of this, your Honor, is to [201] show that this device which Mr. Lyon constructed by combining devices of the prior art is the device, and that moreover a similar and even better device which Mr. Hollingsworth himself developed and used prior to inventing the invention in suit was inferior, also.

Mr. Lyon: Nothing that wasn't public knowledge is material in one of these cases, your Honor.

Mr. Christie: I am sure that it is material for the same reason that your tests which you are about to offer were not a matter of public knowledge. They are still material. So are any tests that we have run, either before or after the inception of this suit. They bear upon the operation of this device or prior devices.

The Court: Overruled.

Mr. Lyon: But there was no such prior device of public knowledge. We were testing machines of public knowledge.

The Court: Overruled. He may answer.

Mr. Lyon: Then I understand, your Honor, that this is a purely secret experiment that he is testifying to now?

The Court: Anything that was known, either in the art or to him, that bears upon the issue of invention, I take it.

Mr. Lyon: It wouldn't be material because it is not prior art or prior knowledge, because to in any

(Testimony of John H. Hollingsworth.)

way affect the patent in suit, it has to be prior public knowledge.

The Court: It bears upon the novelty of it, I take it—— [202]

Mr. Christie: That is correct, your Honor.

The Court: ——the improvement, if any, which resulted in the patent in suit, rose to the dignity of invention.

The Witness: I have completed the drawing.

Q. (By Mr. Christie): Will you explain the drawing that you made and describe what it is and put on whatever legends you need?

A. The device that I am describing used two louvres and a sealed plate. Air was introduced—shown in ink—from the room into the lower louvre, which was just above the panel of the heater. That air then traveled up in the stud space around the vent and was discharged out of the upper louvre back into the room. The purpose of this device was to maintain circulation in the stud space for cooling purposes, and yet not lose any heat air from the room into the attic or out through the flue.

Q. As in the case of the Metalbestos flue?

A. Yes.

Q. And so to that extent it was an improvement over the Metalbestos flue?

A. In that respect it was an improvement over the construction used in Exhibit T, yes, in that it saved heated air, kept it in the room. And, further, it reduced wall temperatures to some degree.

(Testimony of John H. Hollingsworth.)

Q. And was this experiment that you described successful? [203]

A. I would say no, because we never recommended it in the field. We found that although it did provide some minor amount of cooling to the walls, it was rather ungainly looking and that the advantages that would accrue from such a louvre arrangement were not worth the cost and the deduction from the appearance.

Q. You mentioned that it had a slight effect in the wall temperatures. Where was the wall temperature affected?

A. In the area between the two louvres shown here on the sketch.

Q. Would you mark the area?

A. I will mark the area with an X, which by experience is the hottest area on the wall, adjacent to the vent, on the old conventional heaters which were used at the time we worked with this.

Q. Did you measure that temperature at that point that you marked X?

A. Not with thermocouples; only by feel.

Q. What was your impression?

A. My impression was that it was still too hot to avoid complaint from the field. Complaints from the field arose because customers felt hot walls above the appliance and became alarmed, and either called the fire department or the city health department, or the manufacturer, or whoever [204] they might feel could give them some help.

(Testimony of John H. Hollingsworth.)

Q. And did you feel that this was an adequate remedy to the hot wall problem?

A. Oh, no.

Mr. Christie: May I have this sketch to which the witness has just testified marked in evidence as Plaintiff's Exhibit 34?

Mr. Lyon: I will make the same objection; immaterial; merely speculative.

The Court: Overruled. It may be received in evidence.

(The document referred to was received in evidence and marked as Plaintiff's Exhibit No. 34.)

Mr. Lyon: And further that unless it is restricted to illustrating the witness' testimony——

The Court: I assumed it was offered for the purpose of illustrating the testimony.

Mr. Christie: That is correct. [205]

* * * * *

Q. Mr. Hollingsworth, you have testified with respect to what controls the flow of the gas through the lower radiator, and it wasn't plain to me what does control that, and I believe that Mr. Lyon asked you repeatedly whether or not the cross-section of the radiator and the secondary heat exchanger, which we can refer to in the case of the plaintiff as Plaintiff's Exhibit 20-A, and in the case of the defendant as Exhibits 24-B and 25-A; and I think he asked you whether or not the cross-section of the upper radiator had an effect on the flow through the lower radiator.

(Testimony of John H. Hollingsworth.)

A. Yes, I believe he did ask me that question. And I believe I answered that it does not have any direct effect on the flow through the first radiator.

Q. Now, what does the cross-section of the upper radiator affect?

A. As I remembered in the patent, it affects the amount of dilution air or heated room air that is drawn into the relief opening of the draft hood under conditions of high draft in the flue.

Q. Now, what happens when you increase the size, the cross-section of the upper radiator on the flow through the draft hood, all other conditions remaining the same? [208]

A. The flow through the draft hood relief opening would increase.

Q. And what does this do to the thermo efficiency?

A. It reduces it because heated room air is drawn into the flue.

Q. Now, is it necessary to draw heated room air into the flue?

A. No, it is not necessary at all. It is necessary that the draft hood be so designed that it does not spill flue products back into the room. So to that extent, as a practical matter, it is almost necessary to draw a small amount of room air into the relief opening of the draft hood, just as a safety factor, to avoid any reversal of flow under normal operation, and having flue products spilling out into the room.

* * * * *

(Testimony of John H. Hollingsworth.)

Recross Examination

Q. (By Mr. Lyon): Now, Mr. Hollingsworth, you have described and read a statement in the patent about how the size of the second radiator or flue in relation to the lower radiator will affect the draft through the second flue. Now, wasn't it actually well known and old in this entire business that the [209] flue coming out of the top of these draft hoods, if it was smaller than the radiator, would restrict the flow and not drawn a lot of cold air into the flue?

A. No, it wasn't well recognized.

Q. It wasn't?

A. No. I think I can answer that in this way: that all of us in the industry worked for a long time trying to solve the hot wall problem——

Q. I am not talking about the hot wall problem. I am talking about this flue flow that you mentioned. I would like to——

Mr. Christie: Have you finished your answer, Mr. Hollingsworth?

The Witness: No. The hot wall problem and the efficiency problem, I am speaking of those together. The efficiency problem was one that was serious to the extent that the requirements were changed. The 4-foot vent height which was used under the old test procedure and used for a good many years did not demonstrate the actual efficiency loss that would take place in the field because it was a substantially smaller vent height or flue height than that which actually existed under installed conditions, and yet

(Testimony of John H. Hollingsworth.)

it was used for a long time because no one recognized, to my knowledge, that the efficiency was affected so materially by flue height.

The laboratories had to run a requirements research investigation [210] to verify that fact themselves, and they are a nationally recognized agency. They ran those tests after we developed the secondary heat exchanger, and based on those tests the requirements were changed. So I wouldn't say that it was well recognized.

Q. (By Mr. Lyon): You mean that you discovered the fact that flue height was the thing that determined the flow or the draft in a pipe?

A. No, I didn't say that.

Q. I believe that is what your last answer stated.

A. Well, what I was trying to say was—if you misunderstood me—was that speaking in terms of these appliances of the art as we know it related to gas appliances, and wall heaters more specifically, that there certainly wasn't any degree of recognition of the fact that the efficiency of the appliance was seriously lowered by the added vent height that was placed on the appliance in the field over and above that that was used in the laboratories for test purposes. And further that it is the flow of relief air going into the draft hood increasing due to that increased vent height that produces that effect.

Q. Isn't it a fact that almost all of the heaters manufactured prior to your invention had smaller flue pipes on them than they had radiators?

A. The flue pipe used on a conventional heater

(Testimony of John H. Hollingsworth.)

is established [211] by the—by code requirements, and by the underwriter laboratories. For a very small appliance it might be substantially larger than the first radiator. It would depend entirely on the size of the appliance that was connected to the flue.

Q. What size flue pipe was recognized for use with a heater such as Exhibit 24?

A. What is determined as a type B 4-inch oval vent; the 4-inch meaning that it is equivalent in its operation to a 4-inch diameter vent.

Q. Now, isn't that a smaller area than is on the radiator in this device? A. Yes, it is.

Q. Then that at least was old.

Now, I refer you to column 4 of your patent in suit, the very part that you have discussed, starting at line 21. You state, "If the cross-section of the second radiator is chosen so that it accomplishes something——"

How do you choose that?

A. By tests. [212]

Q. By test, experimentation? A. Yes.

Mr. Lyon: I think that is all, your Honor. I am through with this witness.

Mr. Christie: One more question.

Further Redirect Examination

Q. (By Mr. Christie): Mr. Hollingsworth, you started to answer a question by Mr. Lyon, in which you said something about a hot wall, in an attempt to solve a hot wall problem, and he interrupted you

(Testimony of John H. Hollingsworth.)

and you never finished your answer. Do you want to do that now?

A. Well, the hot wall problem has been one that has been serious to the whole industry, and it is one that has been very difficult to solve, it still is a problem to many people, and it is the hot wall problem, in conjunction with the efficiency loss problem, that we have attempted to correct, to overcome with this device.

The hot wall problem and the efficiency problem are difficult to solve, because the hot wall problem in the past has been corrected only by designing the draft hood so that—I should not say “only,” but one method of correcting the hot wall problem has been to reduce flue temperatures by drawing in more relief air into the draft hood and diluting [213] the flue products, and thereby lowering the temperature.

This was something that we did ourselves, in my own knowledge, and that a lot of our competition did, in an attempt to solve the hot wall problem. But it was this approach that so seriously affected the efficiency.

The Court: Is the hot wall problem one that, in essence, the capacity of the heater is limited by the fact that so much heat goes into the wall? As a practical matter you cannot install a high capacity heater by reason of the danger of fire in the wall?

The Witness: Yes. These heaters are designed to go into a four-inch thick wall, between normal studs which are on 16-inch centers. That means that

(Testimony of John H. Hollingsworth.)

the vent then is confined in a very restricted space, and obviously there is a limitation to the flue temperature that you can produce with an appliance of this sort. There is only so low a temperature that you can arrive at by heat transfer without getting into the law of diminishing returns, and therefore any further attempts to reduce temperature over and above that which you can accomplish by normal efficiency of heat transfer must be done by dilution of the flue products with some cooler air.

That was done quite extensively earlier in the art, and is still being done to some degree. But is that that aggravates the efficiency problem, because obviously if you are going to introduce a lot of room air into the draft hood [214] to lower flue temperature under conditions of test with a four-foot high vent, with a two-story vent, the amount of relief air that is drawn into the draft hood is very substantial, and thereby the efficiency is lowered that much more, so we have two opposing problems that we were confronted with. If we raise the flue temperatures by reducing the dilution air down to the bare minimum, we could attempt to partially solve the efficiency problem, but we certainly aggravated the hot wall problem.

Conversely, anything that we did to reduce the hot wall problem by increasing the dilution hurt us on the efficiency, again. So we had these two diverging problems that we were confronted with, and that is what this device does.

(Testimony of John H. Hollingsworth.)

The Court: The purpose of it is to take the heat off the hot wall and put it out into the room, is that it?

The Witness: Takes the heat off the hot wall and puts it in the room, thereby allowing us to operate with a higher flue temperature.

We can control the dilution air entering the draft hood, essentially, irrespective of flue height, because we have sized the cross-sectional area of the second radiator so that it will just barely handle the products of combustion coming out of the first radiator, plus some minor amount of dilution air. So that additional flue height is so constructed by the first radiator that the draft produced [215] by that additional flue height has little effect on the amount of dilution air that is drawn into the draft hood.

The Court: Do your specifications or drawings purport to give any dimensions for any particular apparatus?

The Witness: With respect to cross-sectional areas?

The Court: With respect to anything.

The Witness: Specific dimensions are not mentioned anywhere in the patent.

The Court: And these drawings are not to scale of any kind, is that it?

The Witness: No, sir, they were not intended to be.

The Court: They are purely illustrative?

The Witness: Illustrative drawings, yes. [216]

* * * * *

HENRY LANDSBERG

called as a witness on behalf of the plaintiff, having been first duly sworn, was examined and testified as follows:

The Clerk: Will you state your name, please?

The Witness: Henry Landsberg.

Direct Examination

Q. (By Mr. Christie): Mr. Landsberg, would you state your full name, age, residence, and occupation?

A. Henry Landsberg, age 42; I live at 955 Medford Road, Pasadena, California; I am a chemical engineer.

Q. By whom are you presently employed?

A. Consolidated Engineering Corporation, Pasadena.

Q. What is your position with that company?

A. I am manager of the process instrumentation.

Q. How long have you been in that position?

A. In that particular position I have been about a year and eight months.

Q. Were you employed by the company previously to that, and if so, in what capacity?

A. By the company, you say, sir? [220]

Q. By Consolidated Engineering Corporation.

A. Prior to then I was manager of Titrilog section.

Q. What is the relationship of the Titrilog section to the process instrumentation group of which you are presently manager?

(Testimony of Henry Landsberg.)

A. We have more or less merged the two groups.

Q. Are you now in direct charge of both groups?

A. Right, sir. [221]

Q. You mentioned the Titrilog. How long has your experience been with the Titrilog?

A. For over five years now.

Q. What formal education have you had in engineering and chemistry?

A. I am a graduate in chemical engineering from Rice Institute in Houston, Texas.

Q. When did you get that degree?

A. 1935.

Q. What was your experience from the time that you graduated until you came with Consolidated Engineering Corporation?

A. I was an engineer for the Magnolia Petroleum Company, Dallas, Texas, for about six years. Then I spent four years in the service in command of a mobile petroleum testing laboratory. Also some chemical warfare experience for a short period in the Army. Then for about two years after the Army I was in the injection molding plastic business. And shortly after that I went to work for Consolidated.

Q. What year was that? A. 1949.

Q. Would you explain, Mr. Landsberg, what the Titrilog is?

A. The Titrilog is a device which actually takes a chemical, method of chemical analysis and mechanizes the procedure [222] in that it is used to analyze for oxidizable sulphur compounds, such as hy-

(Testimony of Henry Landsberg.)

drogen sulphide, sulphur dioxide, mercaptan, and so on.

The instrument operates on a principle of oxidation reduction in that the agent bromine is generated as the sulphur is absorbed in an electrolyte solution. The way the instrument actually operates is we start out with a sulphur-free air sample or some gas that is sulphur-free, being introduced into the cell continuously. At that time a small amount of bromine is generated. That bromine, not reacting with any sulphur, since there is none present, sets up a voltage across two sensor electrodes. That voltage is opposed by a reference voltage from a battery, so that the two voltages are equal and opposite. When a gas then enters the cell that contains this the cell is connected in series with a feedback system to a amplifier so that when a gas then enters a cell containing a sulphur compound, the sulphur compound will react with the bromine. Consequently, momentarily the bromine that was there has reacted and it is therefore not setting up a voltage to oppose the reference voltage and the balance is momentarily broken. That breaking of this balance sends a signal to the amplifier to increase the bromine generation so that a balance will again exist.

However a sufficient amount of bromine must be generated to satisfy the reaction, as well as the initial setting. [223] The difference between the initial setting or initial bromine level and the one during the titration of the sulphur is directly pro-

(Testimony of Henry Landsberg.)

portional to the sulphur concentration in the sample gas. The instrument does not record the bromine concentration, but it records the generating current which is directly proportional, or vice versa, rather, the bromine concentration is directly proportional to the generating current.

Q. Have you written any publications describing the Titrilog, Mr. Landsberg?

A. Yes, sir.

Mr. Christie: I will ask the clerk to mark for identification as Plaintiff's Exhibit No. 4 a document entitled "Potentiometric Instrument for Sulphur Determination."

(The document referred to was marked Plaintiff's Exhibit No. 4 for identification.)

Mr. Christie: I hand an extra copy to the court.

The Court: Electrolyte sulphuric acid?

The Witness: Yes.

Q. (By Mr. Christie): I hand you a paper which has just been identified as Plaintiff's Exhibit 4, and ask you if this is the article to which you had reference? A. Yes, sir. [224]

Q. When did this article appear, Mr. Landsberg?

A. This article appeared in the Industrial Engineering Chemistry, in the July 1954 issue.

Q. I notice that you are co-author with Mr. Edward E. Escher; explain who Mr. Escher is.

A. Mr. Escher is a chemical engineer who works in my section.

Q. Does this article accurately describe the con-

(Testimony of Henry Landsberg.)

struction and operation of the Titrilog to which you have referred in your testimony?

A. Yes, sir, it does.

Mr. Christie: I would ask that the document to which the witness has just testified be marked in evidence as Plaintiff's Exhibit 4.

The Court: Any objection?

Mr. Lyon: No objection.

The Court: Received in evidence.

(The document referred to was marked Plaintiff's Exhibit 4 and was received in evidence.)

[See Book of Exhibits.]

Q. (By Mr. Christie): Mr. Landsberg, did you employ the Titrilog in any tests that you made on heaters manufactured by The Coleman Company, the defendant in this suit?

A. Yes, sir, we used a portable model Titrilog.

Q. When were these tests conducted?

A. In July of this year, I believe it was, the 26th, [225] 27th.

Q. I show you a set of photographs previously in evidence in this case as Plaintiff's Exhibit 29, 29-A, -B, -C, -D, and -E, and ask you if you recognize these.

A. Yes, sir, those are pictures of the tests set up.

Q. Will you describe, Mr. Landsberg, in your words the tests that you conducted on the Coleman heaters?

The Court: Will you show him what you mean by the Coleman heaters, now?

Q. (By Mr. Christie): Mr. Landsberg, I am

(Testimony of Henry Landsberg.)

pointing to a portion of a heater previously in evidence as Plaintiff's Exhibit 24, which has been identified as the lower box of the heater which was employed with the four-foot heat exchangers or economizers of The Coleman Company; do you recognize this exhibit? A. Yes, sir.

Q. Is that one which was employed in your tests? A. Right, sir.

Q. And I call your attention to the next exhibit, which is 24-A, and which has been previously identified as a grille or, I believe, housing, which goes on the front of that heater; do you recognize that?

A. Yes, sir.

Q. And was that part of the equipment?

A. Yes. [226]

Q. Now, I call your attention to an exhibit previously marked Plaintiff's Exhibit 24-B, which has been identified as the Coleman four-foot economizer; do you recognize this exhibit? A. Yes, sir.

Q. Is this one that was employed in the tests?

A. Yes.

Q. Now, I call your attention to another exhibit marked Plaintiff's 24-D, bearing the letters 5-A, 5-B, and 5-C, and ask you if you recognize that.

A. Yes, sir.

Q. Will you tell me what it is?

A. That is the upper grille, the lower portion of the upper grille where we made our tests.

Q. I call your attention to another exhibit marked 24-C, which appears to be a burner, and ask you to identify this.

(Testimony of Henry Landsberg.)

A. That is the burner of the furnace that was used.

Q. Now, I call your attention to another lower box marked Plaintiff's Exhibit 25, and ask you if you can identify that.

A. That is another burner or another lower portion of the furnace that we tested.

Q. And your attention is also directed to an exhibit marked 25-A; would you please identify that?

A. That is the upper—the heat economizer for the three-foot furnace.

Q. A further exhibit marked heretofore in evidence as Plaintiff's Exhibit 25-C, bearing in red pencil the notations 5-A, 5-B, and 5-C, I ask you to identify that.

A. That is the upper grille for the three-foot furnace.

Q. And another burner previously marked as Plaintiff's Exhibit 25-B?

A. That is the burner for that furnace.

Q. With the three-foot economizer?

A. Yes.

Q. Now, Mr. Landsberg, are these elements that you have just identified in the Coleman furnaces shown in the photographs marked 29 through 29-E, Plaintiff's exhibits? A. Yes, sir.

Q. I call your attention to a large drawing previously in evidence as Plaintiff's Exhibit 21 in this action, and ask you to identify, if you will, the construction which was employed or the installation

(Testimony of Henry Landsberg.)

which was employed in the test of the Coleman four-foot economizer.

A. Do you mean the whole test set up?

Mr. Lyon: If your Honor please, I object to that line of testimony. This drawing was an exhibit to illustrate the testimony of another witness, and how this man can state that that is, unless he adopts that drawing as a construction that [228] he would call—they are trying to put this document in evidence as being a drawing of the Coleman heater.

The Court: A diagram of the operation of it, the mode of operation of it?

Mr. Lyon: Well, he merely asks him if this is a diagram that he used.

Mr. Christie: Your Honor, there isn't any secret about this. I am asking the witness to identify the drawing, because I expect to ask him to put on the drawing certain test points which he employed in the tests. They are also shown in the photographs which are already in evidence.

Mr. Lyon: I think the test points show better in the photographs than they do here in the drawing that somebody else made.

The Court: Lay the foundation. If the witness identifies this as a fair diagram of the heater he tested, he may place his markings on the diagram, as well as the photograph.

Q. (By Mr. Christie): Mr. Landsberg, I call your attention to the diagram on the right-hand side of the sheet marked Coleman four-foot econ-

(Testimony of Henry Landsberg.)

omizer, and ask you if this shows the installation of the equipment that you tested.

A. Yes, it does, with the exception of the tunnel that we had in front for the test purpose.

Q. Now, I ask you, with respect to the center drawing marked "Coleman with three-foot economizer," the same question, does [229] this show——

A. The same answer applies, that it is the test set up with the exception of the tunnel. [230]

Mr. Lyon: Your Honor, my objection was not to identifying the thing, but in marking up the exhibit which another witness has already drawn to illustrate his testimony, and if this gentleman confuses that, the record will be in bad shape.

The Court: As I understand, he is only marking the point where he connected the test equipment.

Mr. Christie: That is correct.

The Court: Is there any objection to that?

Mr. Lyon: That is my point, your Honor. It is not what this other gentleman testified then but what this man did. This exhibit is only in evidence as illustrating his testimony.

The Court: Do you have other copies?

Mr. Christie: Yes.

Mr. Lyon: That is what I prefer, your Honor.

The Court: I suggest you make use of them. And if the witness wishes to adopt it as illustrative of his testimony, he may do so.

Mr. Christie: I will ask the clerk to mark this

(Testimony of Henry Landsberg.)

sheet of drawings as Plaintiff's Exhibit 5 for identification.

(The document referred to was marked as Plaintiff's Exhibit No. 5 for identification.)

Q. (By Mr. Christie): Mr. Landsberg, with reference to Plaintiff's Exhibit 5 for identification, I ask you to tell me, if you know, what the diagram is appearing on the right [231] of the drawing.

A. That is the Coleman furnace with a four-foot heat exchanger.

Q. Does that show the test set-up that you employed?

A. Yes, with the exception of the tunnel.

Q. Now, I ask you, would you mark the portion of the drawing which you have just had reference to with a mark A, for convenience; just mark A at the top of the drawing, if you will?

A. (Witness complies.)

The Court: I think it might be well to identify the drawing with an exhibit number.

Mr. Christie: I think it is Plaintiff's Exhibit 5.

The Clerk: Yes. It has just been marked Plaintiff's Exhibit 5 for identification.

The Court: Very well.

Q. (By Mr. Christie): Would you mark a large A at the top of that?

Now, I ask you the same question with respect to the center diagram on Plaintiff's Exhibit 5 for identification. What would your answer be to that?

A. That is the 3-foot—the furnace with the 3-foot heater exchanger.

(Testimony of Henry Landsberg.)

Q. Does that show it as installed for your test purpose? [232]

A. It is with the exception of the test tunnel.

Q. Now, will you mark that central diagram with a large initial B?

A. (Witness complies.)

Q. Mr. Landsberg, with reference now to the photographs Plaintiff's Exhibits 29 to 29-E, will you describe the test set-up employed, first with the 4-foot economizer and later with the 3-foot economizer, employing the drawing, Plaintiff's Exhibit 5 for identification, for any purpose that you need in illustrating the tests?

A. A tunnel was placed in front of the furnace so that the inlet was completely surrounded by this tunnel. Within the tunnel we had a bottle of pure sulphur dioxide with a very small capillary so that a very small amount of sulphur dioxide was leaving the bottle continuously. Also in the tunnel there was a mixing blade which was somewhat of an adjusting—a rotating blade with no pitch so there would be no forward thrust of the air, just a blending of SO₂ or sulphur dioxide, with the air. And then we tested four points across the back of the furnace, approximately——

Q. Mark them, if you will, Mr. Landsberg. You are referring now to drawing A on Plaintiff's Exhibit 5 for identification?

A. Drawing A, there were four points across the back about approximately this point (indicat-

(Testimony of Henry Landsberg.)

ing), and those points [233] were marked 1, 2, 3, and 4.

The Court: You have now marked them on the exhibit?

The Witness: Yes, sir.

Q. (By Mr. Christie): Are those points shown on any of the photographs, Mr. Landsberg?

A. Those same points are shown on this photograph—which I am not sure whether it is the 3- or 4-foot. I think that's the 3-foot.

Q. Were they the same in——

The Court: "This photograph" being——

Mr. Christie: Exhibit 29-D, sir.

The Court: Always identify the exhibit number.

The Witness: All right, sir. Then those were to be test points. Then we established test points 7 and 8, which are the louvres at the upper portion of the panel,——

The Court: Exhibit——

The Witness: Exhibit 24-A, I believe that is.

Mr. Christie: 24-A.

Q. (By Mr. Christie): Do those show in any of the photographs, Mr. Landsberg?

A. And those show in photograph 29-C; points 7 and 8.

Q. Will you mark those test points?

A. And I will mark that test point here (indicating).

Q. On Plaintiff's Exhibit 5 for identification, the diagram that you previously marked A? [234]

A. Right, sir. Then we established points 5-A,

(Testimony of Henry Landsberg.)

-B, and -C, which is the upper grille of the economizer.

The Court: Exhibit——

The Witness: Exhibit 5.

Q. (By Mr. Christie): Mr. Landsberg, I call your attention to Plaintiff's Exhibit 24-D and ask you if this shows the test points.

A. That shows the test points. And it is shown in the picture 29-C, 5-A, 5-B and 5-C.

Mr. Christie: Now, will you mark those locations?

(Witness complies.)

The Court: You have now marked those test points 5-A, 5-B and 5-C on drawing A on Exhibit 5 for identification?

The Witness: Yes.

Q. (By Mr. Christie): Now, will you go on, Mr. Landsberg, in your description of your test procedure? You mentioned certain sample points. Will you describe how the samples were taken at the several points, 1, 2, 3, 4, 7, 8, 5-A, 5-B and 5-C, and explain what you did with the samples, if anything?

A. We had quarter-inch tubes into the air space at points 1, 2, 3 and 4; and a sample was taken at these points and introduced to the Titrilog. That is, at each one of these points a sample was taken for a short period of time while the instrument recorded the concentration. [235]

We also took samples at points 7 and 8 by laying our quarter-inch sampling point as close as

(Testimony of Henry Landsberg.)

possible to the louvres to indicate the concentration, sulphur dioxide concentration of air entering at these points.

Then at points, sample points 5-A, 5-B, and 5-C, we used a funnel—I think it is approximately two inches in diameter at the outer edge—connected to the quarter-inch tubing, and tested across that grille, using a funnel, with the idea that we'd get a more representative sample.

The Court: "That grille" is the upper grille?

The Witness: The upper grille, yes, sir.

Q. (By Mr. Christie): Would you describe points 7 and 8?

A. Yes. 7 and 8 are the louvres at the upper portion of Exhibit 24-A.

Q. You have made reference to certain tubes in connection with your sampling points 1, 2, 3 and 4. How were those tubes connected?

A. To the furnace, sir?

Q. If you will.

A. They were sticking through tight-fitting holes into the air space between the wall and the furnace.

Q. Can you show on Plaintiff's Exhibit 5 for identification one of those tubes in section? And will you mark that, if you will, with the legend "tube"? [236]

A. (Witness complies.)

Q. With reference again to your test points 1, 2, 3 and 4, will you describe just where each one of them was placed, having reference, if you will, to one of the photographs 29-A to 29-E?

(Testimony of Henry Landsberg.)

A. Points 2 and 3 were directly on the back; and points 1 and 4 were on the sides.

Q. Now, did points 1 and 4—how did the tubes enter the space, if they did, in the case of tubes 1 and 4? A. I don't quite understand. [237]

Q. I will try to rephrase the question. Will you explain how tubes 1 and 4 were connected to the space which you said was inside the wall and outside the heater?

A. They were through holes so that the tube—there was a tight fit there.

Q. Now, will you describe, Mr. Landsberg, what your test procedure was with respect to each one of the points? Did you employ the Titrilog to sample the gas at each one of those points?

A. The Titrilog was continuously running on fresh air, that is air that had no sulphur, by scrubbing it through a charcoal filter, and that establishes our zero level. Each time we would establish a zero level we would then connect to one of the tubes or one of the test points, and allow that to establish a record for a short period of time. Between each test point we re-established a zero level, and we tested points 1, 2, 3, and 4, and 7 and 8, and 5-A, -B, and -C.

Q. As you have previously described?

A. Yes.

Q. Where did you run the gas that you withdrew from each one of these test points?

A. That gas was introduced into the Titrilog.

Mr. Christie: I would like to offer the drawing

(Testimony of Henry Landsberg.)

about which Mr. Landsberg has testified as Plaintiff's Exhibit 5, [238] is illustrative of Mr. Landsberg's testimony.

The Court: Is there objection?

Mr. Lyon: No objection.

The Court: Received in evidence.

(The drawing heretofore marked Plaintiff's Exhibit 5 was received in evidence.)

Q. (By Mr. Christie): Mr. Landsberg, you have described certain test points and given them identifying numbers. Do these apply both to the three-foot economizer and the four-foot economizer?

A. They do.

Q. I will ask you, then, to mark those points on Plaintiff's Exhibit 5, drawing B, that you testified illustrates the three-foot economizer installation.

(Witness does as requested.)

Q. (By Mr. Christie): You are now marking on drawing B of Plaintiff's Exhibit 5, and you have identified that with the word "tube"; is that correct?

A. Right, sir.

Mr. Christie: I will ask the clerk to mark for identification as Plaintiff's Exhibit 6 a group of test records or chart records.

Mr. Lyon: You may offer them in evidence. I haven't any objection.

Mr. Christie: Very well. I will offer them in evidence. [239]

The Court: They have been identified as charts of the tests that the witness has just testified to?

Mr. Christie: I will ask him that question.

(Testimony of Henry Landsberg.)

Mr. Lyon: I will agree that they are, your Honor.

The Court: Do you accept the stipulation?

Mr. Christie: I accept the stipulation.

The Court: Very well. Received in evidence as Exhibit 6.

(The documents referred to were marked Plaintiff's Exhibit 6 and were received in evidence.)

Q. (By Mr. Christie): Mr. Landsberg, I hand you Plaintiff's Exhibit 6—it was previously identified as Plaintiff's Exhibit 5 in the depositions—and ask you to tell me what these records show.

A. These are recordings of the Titrilog during the testing of these various points.

Q. Are the points at which your readings were taken identified on these?

A. Yes, sir, they are.

Q. And how are they identified?

A. By the number of the sample point.

Q. That you have previously testified to?

A. Yes.

Q. And do you distinguish the tests on the four-foot economizer and those on the three-foot economizer? [240]

A. I don't believe the records are so marked, because we took our data off and marked our data sheets. * * * * * [241]

Mr. Christie: I believe he has tabulated those findings and tabulated them at the time. If I may, your Honor, I would like to proceed by having this

(Testimony of Henry Landsberg.)

document identified as Plaintiff's Exhibit 7 for identification.

The Court: It may be so marked.

(The document referred to was marked Plaintiff's Exhibit 7 for identification.)

Q. (By Mr. Christie): Mr. Landsberg, I hand you a sheaf of papers which has been marked Plaintiff's Exhibit 7 for identification, and ask you if you recognize these papers, and tell me what they are.

A. These are the notations of the readings off the records at the time of the deposition at the various points on both the four-foot heat exchanger and the three-foot heat exchanger furnaces.

* * * * * [242]

The Court: Are the figures the same in Exhibit 7 as they are in the deposition?

The Witness: These are the figures that I wrote down in the presence of Mr. Lyon during the tests.

The Court: By "these" you are referring to Exhibit 7 for identification?

The Witness: Exhibit 7, sir.

The Court: And the figures stated in the deposition, are they the same?

The Witness: Yes, sir.

The Court: Subject to comparison would that be sufficient?

Mr. Lyon: Yes, your Honor. [243]

The Court: Do you offer Exhibit 7?

Mr. Christie: I offer Exhibit 7, subject to any comparison that Mr. Lyon may wish to make.

(Testimony of Henry Landsberg.)

The Court: Received in evidence.

(The documents heretofore marked Plaintiff's Exhibit 7 were received in evidence.)

Mr. Christie: I would like to have marked for identification as Plaintiff's Exhibit 8 a group of papers marked Computations for Holly Manufacturing Furnace Tests, and signed on the last page—bearing the handwritten signature of Henry Landsberg.

The Court: It may be so marked.

(The documents referred to were marked Plaintiff's Exhibit 8 for identification.)

Q. (By Mr. Christie): And I ask you to identify this document. * * * * * [244]

Q. (By Mr. Christie): My question to the witness is: Mr. Landberg, will you identify this document?

A. This is a procedure showing how a formula was derived whereby we could determine the relative concentrations of the gas coming up the back of the furnace by using the concentrations as determined with the Titrilog.

Mr. Christie: Your Honor, I have another copy.

The Court: Hand it to the clerk. That is Exhibit——

Mr. Christie: Plaintiff's Exhibit 8.

The Court: Are you offering that in evidence?

Mr. Christie: I am offering that in evidence as illustrative of the testimony.

The Court: Is there objection?

(Testimony of Henry Landsberg.)

Mr. Lyon: As illustrative of the testimony, no objection.

The Court: Received in evidence.

(The document heretofore marked Plaintiff's Exhibit 8 was received in evidence.)

Q. (By Mr. Christie): Mr. Landsberg, will you go through [245] Plaintiff's Exhibit 8 and explain to the court the derivation of your formula and whatever else you derived?

If it would help you, Mr. Landsberg, the blackboard is right there. If you want to illustrate your testimony on the blackboard, I am sure there is no objection.

The Court: You may.

(Witness at blackboard.)

The Witness: The diagram shown in Exhibit 8, or on this diagram there are two points at which air is being introduced, and one point at which it is being expelled, that is of interest to these tests.

The Court: These are computations made from the tests that you have just testified to?

The Witness: Yes, sir.

The Court: The tests made on the three- and four-foot Coleman heaters?

The Witness: Right, sir. And that is a procedure whereby the formula in computing these data was used. These are two points, then, at which gas is being introduced, and one point at which it is being expelled.

Q. (By Mr. Christie): From what, Mr. Landsberg?

(Testimony of Henry Landsberg.)

A. From the furnace or through the heat exchanger, the economizer, that is.

Now, we have designated one point as X, and the gas leaving the heat exchanger as V. If V is leaving and X is [246] the amount of gas entering at one point, then the other point must be V minus X. In other words, then, X plus V minus X equals V. That is, the gas entering at this point, and the gas entering at this point, equals the gas coming out at this point.

Algebraically, that of course cancels out, V equals V.

The Court: Does gas enter at both points, V and V minus X?

The Witness: Right, sir.

The Court: I mean X and V minus X.

The Witness: X is the gas that is moving up between the wall and the lower box.

The Court: And V minus X is the gas——

The Witness: Gas entering through the louvers on Exhibit 24-A at points 7 and 8.

The Court: That is the lower vent on the front?

The Witness: Right, sir. And V is the gas being expelled through the upper grille.

The Court: Which is the upper grille?

The Witness: Upper grille, yes.

Mr. Christie: Would it be clear, your Honor, if he identified on his diagram the points that he has already testified to with respect to the testing?

The Court: No; I am just attempting to make the record clear. [247]

(Testimony of Henry Landsberg.)

The Witness: Now, then, if we introduced a concentration of sulphur dioxide at point X, and that concentration were C_1 , the concentration being quantity per unit volume, the the amount of sulphur dioxide that is coming in here would be X times C_1 .

The Court: That is at point X?

The Witness: Right, sir. Likewise, if the concentration of sulphur dioxide entering at this point were C_2 —

The Court: This point being the point V minus X?

The Witness: V minus X, then the amount here would be C_2 times V minus X. In that the concentration is mass per unit volume. Therefore, the amount that is going through here would be this C_2 times V minus X.

So, likewise, the amount that is leaving the furnace would be its volume times its concentration. That is, the gas coming through the upper grille, and that we will designate as C_3 . So you might write that expression: C_1 times X plus C_2 times V minus X equals C_3 times V. And that boils down to that expression (indicating).

The Court: Which is C_1 —

The Witness: C_1X plus $C_2 V$ minus C_2V equals C_3V . Or X times C_1 minus C_2 equals V times C_3 minus C_2 . And then X equals V times C_3 minus C_2 over C_1 minus C_2 . [248]

The Court: You are just reducing the equation.

The Witness: Yes, sir. What I am trying to

(Testimony of Henry Landsberg.)

prove here is this: The relation of XV can be determined without knowing either X or V, but by merely using the concentration of each of those points.

The Court: You have two unknowns in your equation.

The Witness: Right, sir. And the relation of X to V, the proportion of V—that is, X can be determined by knowing these concentrations.

Q. (By Mr. Christie): Mr. Landsberg, have you in your tests—did you measure the concentrations at the points that you have identified as V, X and V minus X?

A. Yes, sir. X is represented on Exhibit 5 by the points 1, 2, 3 and 4. V minus X is represented by the test points 7 and 8; and V is 5-A, 5-B and 5-C.

Q. Proceed with the description of your computations, Mr. Landsberg.

A. That is the extent of the computation for the time being, but—

The Court: SO₂ on the second page of Exhibit 8 means sulphur dioxide?

The Witness: Right, sir.

Now, as I mentioned before, the Titri-log records the current which is generating bromine. The bromine concentration is directly proportional to that current as per Faraday's [249] law. The quantity of SO₂ present in the incoming sample to the Titri-log is directly proportional to the quantity of bromine being generated above the zero level, and therefore

(Testimony of Henry Landsberg.)

directly proportional to the recorded bromine generating current.

Now, on the Titrilog—the Tritrilog actually measures the mass of sulphur dioxide in the incoming sample. However, the volume of the sample that is going into the Titrilog is maintained at the constant level by a critical flow orifice. So, therefore, since the volume is constant for all samples, then the quantity of sulphur dioxide determined as—or directly on the record, the generating current is therefore a direct—is directly proportional to concentration in each case.

The Court: The volume always being the same; volume always being constant?

The Witness: Yes, sir. Now, regarding any temperatures which might affect these tests, if the temperature of the sample varied in the quantity of sulphur—then the actual volume of the sample entering the Titrilog cell, based on standard conditions, would be less in one case than in another. That is, at the elevated temperature. And therefore the quantity of sulphur recorded would be less.

The Court: Your volume would not be constant.

The Witness: Right. However, the specific heat of gas [250] being so low that by the time it is conducted through a test tube, tube which is bringing the sample to the Titrilog, two or three or four feet, that gas has come to equilibrium with the ambient atmospheric temperature. So you do have a constant temperature for sample. Therefore, you do have a constant volume there. Your bromine gener-

(Testimony of Henry Landsberg.)

ating current is proportional to concentration in each of the test points, and so we do know our C_1 , C_2 and C_3 at each of these points.

The Court: Does Faraday's law require that the amount of the gas generated be directly proportional to the quantity of generated current?

The Witness: Right, sir.

Mr. Lyon: I couldn't quite hear that question. Could I have the reporter read it?

The Court: Yes. Would you read it, Mr. Reporter?

(Record read.)

The Witness: Now, on the two tests that were performed, we have established this formula, then, that X equals V and C_3 minus C_2 over C_1 minus C_2 —and on the 4-foot furnace C_1 was 60, 57—these are the points 1, 2, 3 and 4—60 and 11, for an average of 47.

C_2 was 7 and 7 for an average of 7.

Q. (By Mr. Christie): What points were those, Mr. Landsberg?

A. Those were points 7 and 8. [251]

And C_3 were points 5-A, -B and -C.

The Court: 7 and 8 is the lower front vent, isn't it? The lower vent?

The Witness: The louvre.

The Court: Yes. I call it a vent. The lower louvre.

The Witness: Right.

The Court: Out of which air comes.

(Testimony of Henry Landsberg.)

The Witness: At this point air is actually going in.

Mr. Christie: You are referring to Plaintiff's Exhibit 24-A?

The Witness: 24-A. And C_3 , which represents the upper grille, which gas is being expelled from, and those points were 5-A, -B and -C, and the readings were 37, 16 and 36, for an average of 30.

Then using the averages in this formula, then we have 30 minus 7 over 47 minus 7, times V equals 23 over 40—or .575V. In other words, the volume X is $57\frac{1}{2}$ hundredths of V or 57.5 per cent of V.

The Court: What came out——

The Witness: Of the upper?

The Court: ——upper grille was $57\frac{1}{2}$ per cent in concentration for sulphur?

The Witness: No, sir. The sulphur concentration of what came out of the upper grille is C_3 . That's an average of 30. [252]

The Court: Whatever that concentration was, 57.5 per cent of it came out of the upper grille? Is that it, of what entered X?

The Witness: Well, the volume?

The Court: Yes.

The Witness: The volume was composed of $57\frac{1}{2}$ of V, $57\frac{1}{2}$ per cent of V is X, in order to get this concentration at V.

The Court: Where is V? What is your point V?

The Witness: V is points 5-A, -B and -C.

The Court: The upper grille?

The Witness: The upper grille.

(Testimony of Henry Landsberg.)

The Court: Yes: I understand it now.

Q. (By Mr. Christie): Mr. Landsberg, related to the actual equipment tested, what per cent of gas came up the back and sides of the furnace?

A. $57\frac{1}{2}$ per cent.

Q. How much came in points 7 and 8?

A. The difference, which would be $42\frac{1}{2}$ per cent.

The Court: Points 7 and 8 being the lower grille.

The Witness: Points 7 and 8 being the louvres at the lower box on Exhibit 24-A.

Q. (By Mr. Christie): And what was the total percentage coming out the upper grille of this 4-foot exchanger? A. That would be 100 per cent.

Q. Now, have you placed these figures and this calculation that you have just testified to on Plaintiff's Exhibit 8 for identification? Is the calculation that you just made on the blackboard shown in Plaintiff's Exhibit 8 for identification? And, if so, where?

A. Right, sir. The calculations of this particular test are on page 5, designated furnace with 4-foot heat exchanger.

Q. At the top of the page?

A. At the top of the page. And a similar calculation is made at the lower portion of this page designated by furnace with 3-foot heat exchangers.

Q. Will you run through that calculation, if you will, please?

Mr. Lyon: I will agree he made it the same way he made it on the other one, and he came out with this answer.

(Testimony of Henry Landsberg.)

Mr. Christie: That will save some time, your Honor. We will agree to that stipulation.

The Court: As I understand it now, of the air emitted from the upper grille of the 4-foot furnace, 57½ per cent of it, the source of that was the back of the lower box.

The Witness: Right, sir.

The Court: 42½ per cent of it came from the lower grille in front?

The Witness: Right, sir. [254]

The Court: Now, on the 3-foot, using the same method of computation measurement, and computation, what are your figures for the 3-foot furnace?

The Witness: 22 per cent came from the back of the box. Now, that could be 22. This is a—the points 7 and 8 came out to be 5 and 4. In my computations here, in order to be conservative, I used 5. And therefore the concentration of the air coming up the back was 22 per cent. If you had used 4, it would be 24 per cent. And actually an average should have been used, which would be 23 per cent.

The Court: 22 or 23 per cent of the air emitted by the upper grille of the 3-foot furnace, Coleman furnace, came from the back of the lower box?

The Witness: Right, sir.

The Court: And 78 per cent came from the lower grille in front?

The Witness: Right, sir.

Q. (By Mr. Christie): Points 7 and 8, Mr. Landsberg? By the lower grille you mean points marked 7 and 8 on plaintiff's Exhibit 24-A?

(Testimony of Henry Landsberg.)

A. Yes.

Q. Have you completed your testimony with respect to the test computations that have been marked Plaintiff's Exhibit 8 for identification?

A. Yes, I believe that about covers it. [255]

Mr. Christie: I ask that they be marked in evidence as Plaintiff's Exhibit 8.

Mr. Lyon: Illustrating the witness' testimony only, your Honor.

The Court: According to my notes, they are in evidence. Exhibit 8 is in evidence.

Mr. Christie: I am sorry.

The Court: If not, it is now received.

Q. (By Mr. Christie): Now, in these computations which are represented by Plaintiff's Exhibit 8, you actually used the concentrations which were detected by the Titrilog in the tests that you made on these 3- and 4-foot economizers, is that correct?

A. Right.

Q. Now, Mr. Landsberg, can you tell us something about the accuracy of the test equipment that you employed, if you know?

A. Yes. The Titrilog is being widely used in industry, and the accuracy is of course a very important factor in how useful the instrument is. So the Titrilog, in order to read, to yield a concentration figure from the recording which is the generating current, a factor has to be applied. That factor is obtained by calibration. And the stability of that factor determines the accuracy of the Titrilog.

Since this was of utmost importance in the use

(Testimony of Henry Landsberg.)

of the instrument [256] by industry, the stability of these calibrations were determined by running four instruments constantly for a period of a month, and periodically, every 18 hours to be exact, it was so connected up that every 18 hours automatically a gas of known sulphur concentration was introduced into the instrument, and thereby establishing a calibration automatically. That test was carried on for a full month on four instruments, which were given no more than the usual maintenance that an instrument in the field would be given. And then that same test was repeated a second time for another month. And the results are tabulated in the paper.

Q. Plaintiff's Exhibit—

A. Plaintiff's Exhibit 4, I think it is, on page 1425. And that shows that if the Titrilog is calibrated daily, 90 per cent of the calibrations will fall within 3 per cent of one another. If the Titrilog is calibrated on a weekly basis, 90 per cent will fall within 7 per cent; and so on. That's, I think—is that sufficient?

And done every half a month and month, it seems that the calibration, the accuracy or the variation levels off so that the two are practically the same; and 90 per cent of the readings or calibrations will vary no more than approximately 11 per cent.

Q. Now, did these calibration figures enter into the calculations that you testified about? [257]

A. The calibration—we made no attempt to calibrate the Titrilog prior to the tests made on the fur-

(Testimony of Henry Landsberg.)

nace, since we were not after—oh, we had no interest whatsoever in the absolute concentration of the sulphur dioxide in the gas. All we were interested in was a figure which would indicate relative concentrations at each of the points tested. Therefore, no calibration was made. So the only point that is questionable, that is of interest, is how stable was the instrument from one reading to another. And since its stability is 3 per cent over a 24-hour period, you can practically assume that it is completely stable over the period of the test.

Q. How long a period did the test consume?

A. Oh, I think each test required about an hour.

* * * * * [258]

Cross Examination

Q. (By Mr. Lyon): Mr. Landsberg, what is the size of the samples that you took at these various points?

A. Approximately 1,000 cc.'s per minute.

Q. And how long did it take to secure one of these samples?

A. Well, the period that it takes to secure a sample can be practically instantaneous; however, we allowed it to sample for approximately five, I don't know, three to five minutes per point.

Q. It was five minutes, wasn't it?

A. Well, I wouldn't say it was five minutes. I think we can tell from the record.

Q. Can you determine from the record, from these charts?

(Testimony of Henry Landsberg.)

The Court: What exhibit are you examining?

The Witness: I would say approximately five minutes.

Q. (By Mr. Lyon): Mr. Landsberg, you took samples at the back of the inner box, such as Exhibit 24, between the plate of glass that was to represent the wall, and the back of the box, did you not? A. Right, sir.

Q. And those points were the points 2 and 3?

A. Right, sir. [259]

Q. In other words, there was a wall here right against—substantially against the back of the heater, wasn't there?

A. Well, I don't know. It wasn't against the back of the heater; it was back of it.

Q. It was approximately three-eighths of an inch deep, wasn't it, that area between the furnace back and the wall?

A. I am not sure of the distance.

Q. Did you ever measure the volume of gas that could be placed between the wall and the back of the heater?

A. No, I didn't measure that volume. I would say it was by far in excess of a thousand cc.'s per minute.

Q. You would? A. Yes.

Q. In other words, you weren't actually sucking gas up the back by means of this sampling technique that you used?

A. No, sir. The 1,000 cc.'s is equivalent to about 1/28th of a cubic foot.

(Testimony of Henry Landsberg.)

Q. Would you say that your testing technique would have any value if you were sucking gas up the back?

A. It would introduce air if we were sucking gas, or if the——

Q. Would you now please calculate the volume that can be contained in the back of this heater?

The Court: Do you mean in the annular space between the [260] back of the heater and the wall?

Mr. Lyon: That's right.

The Witness: That can be contained?

Mr. Lyon: That's right, what is the volume of the space back there?

The Witness: On the basis of the space between the wall and the——

Mr. Lyon: And the back of the heater that was approximately three-eighths of an inch.

The Court: Back of the lower box, is that it?

Mr. Lyon: That's right.

The Court: Which is Exhibit——

Mr. Lyon: 24.

The Witness: Well, I would have to have some dimensions.

Mr. Lyon: May I have that ruler, Mr. Clerk, please.

I will now measure the width of the space. It is approximately 13 inches, is it not?

The Witness: Yes.

Mr. Lyon: And the height is 50 inches, is it not? Or would you care to measure it? This is an 18-inch ruler.

(Testimony of Henry Landsberg.)

The Witness: Yes. We have 13 by 50.

Mr. Lyon: Yes.

The Witness: Do you mind if I rough this out at point 4?

Q. (By Mr. Lyon): You can rough that out. We don't need exact figures. [261]

A. 260 cubic inches.

The Court: In other words, there are 260 cubic inches of air space behind the back wall of the lower gas box, lower heater box?

The Witness: Yes.

Q. (By Mr. Lyon): That is cubic inches, is it not?

A. Right.

Q. Now, will you convert that into cc.'s, please? It is 16.39, the conversion figure.

A. Conversion of what to what?

Q. To convert that to cubic centimeters or cc.'s.

The Court: Cubic inches to cubic centimeters?

Mr. Lyon: That is right. Multiply by 16.39.

The Witness: That is correct.

Mr. Lyon: How many cubic centimeters do you get?

The Witness: 4,261.

Q. (By Mr. Lyon): And our sample was taken in five minutes, so we took 5,000 cc.'s, did we not?

A. Right, sir.

Q. So we took more than was in the back of the box?

A. No, sir.

Q. You didn't?

A. You had flow.

Q. Yes, but in the period——

(Testimony of Henry Landsberg.)

A. You had gas constantly moving through there. [262]

Q. You withdrew in five minutes more than the total volume of it? A. No, sir.

Q. And in one minute you took substantially a quarter of the gas out of the back, did you not?

A. This is not a static system. Gas is flowing through here.

Q. But if you can remove a quarter of the gas in a given space for a test, certainly that gas is not running in its normal channel, is it?

A. The gas is moving through there continuously.

Q. Did you measure the rate of flow?

A. No.

Q. Do you know that there was any flow of any given volume?

A. No given volume. I know that was a volume.

Q. There was a volume, but you can't say that you weren't drawing a quarter of that gas out through your machine, can you?

The Court: Over what period?

Mr. Lyon: Over any period, of the gas passing through there.

The Court: What do you mean, out through the machine?

Mr. Lyon: When he put his sample tube up there, your Honor, as shown in Exhibit 29-E, he was removing at all times [263] at least a quarter of the volume in there.

The Court: Is that correct?

(Testimony of Henry Landsberg.)

The Witness: We were taking out at the rate of approximately a thousand cc.'s per minute. Gas is continuously flowing through there. Therefore, I can't say that we took one-quarter of the gas that was there, because the gas is continuously flowing. It is not a static system.

If that portion of the furnace were enclosed, and therefore contained the 4,200 cc.'s, then in one minute we would be taking out a quarter or 25 per cent of it.

Q. (By Mr. Lyon:) But you didn't bother to measure or determine in any way how much you were sucking out of there.

A. I know how much I was sucking out.

Q. I mean out of the total volume.

A. No, not out of the total. However, by sizes of space through which the gas is passing I assumed, without any question, that the percentage was extremely small, in that you have a cross sectional area here through which the air is flowing of .375 times 13.

The Court: Those are inches now?

The Witness: Those are inches. That is a considerably larger cross sectional area than the gas that is feeding—the Titrilog is flowing through.

Q. (By Mr. Lyon): How about the reduced pressure above the point that you sampled, and in your testing machine how [264] do those compare?

A. The reduced pressure where?

Q. Above the point that you sampled, and in your test machine.

(Testimony of Henry Landsberg.)

A. The pressure in the test machine is practically atmospheric pressure.

Q. How about the pressure that forced the gas out of the back of the furnace into the Titrilog, what was that?

A. The pressure that forced the gas from the furnace into the Titrilog?

Q. Yes.

A. That was atmospheric, in that the whole system was open to the atmosphere.

Q. All right. Then what was the suction pressure?

A. The suction pressure on the downstream side of the orifice that is pulling the sample, this orifice is about, I don't recall the exact size, it is not any larger than the—it is not near as large as the lead of a pencil, an ordinary pencil—the pressure on that side of the orifice is somewhat less than half an atmosphere.

Q. Half an atmosphere? A. Right.

Q. Approximately seven to eight pounds pressure that you were pulling that sample?

A. The pressure differential at that point across the [265] orifice, which is a considerable distance from the point at which we are sampling—in fact, it is on the other side of the titration cell.

Q. Didn't you testify at the time of the taking of your deposition that there was approximately two inches of mercury in the suction tube?

A. In the suction tube of the sample?

Q. Yes.

(Testimony of Henry Landsberg.)

A. If we put a restriction on it, it would pull to that. But it was open to the atmosphere.

Q. But that is the suction pressure that you were putting on the sample to draw it out of the back of the furnace?

A. No, I wouldn't say that that was the suction pressure which we were drawing the sample out of the furnace. I would say that the instrument, if necessary, is capable of pulling that. But with the sampling probe at the furnace open to the atmosphere, it is not pulling that type of vacuum.

Q. What causes the gas to go out of the back of the furnace into your sampling machine, if there is no suction?

A. I didn't say there was no suction. I said there wasn't two inches of mercury vacuum.

Q. Mr. Landsberg, if the concentration of SO_2 varies during one of these tests, do your figures make any sense? [266]

A. We expect them to vary to a degree. How much variation are you referring to?

Q. All right. We took samples at the points 1, 2, 3, and 4 at the back of Exhibit 24, didn't we?

A. Right.

Q. And during the time we took those samples it took approximately a half an hour?

A. Well, let's say it does. I don't recall.

Q. Then you took samples at the points 7 and 8?

A. Right.

Q. Those took approximately 12 minutes, 10 to 12 minutes? A. Roughly.

(Testimony of Henry Landsberg.)

Q. So we are now up to, from the time we took our first sample at the back, we have got 40 to 42 minutes, have we not, difference?

A. On the basis of those figures, I don't believe——

Q. Please answer my questions. You can explain later. Isn't it true that between those samples was 42 minutes?

A. There was a period of time, whether it is 42 or 30 I don't recall.

Q. Then you took three samples from point 5-A, 5-B, and 5-C on Exhibit 24-D, which is the outlet of the economizer, which took another 18 minutes or so minimum, did it not? A. No, sir. [267]

Q. Well, each sampling took about five minutes, didn't it, and there was a period of time to allow the machine to come back to zero between each sample, was there not? A. Yes; yes, sir.

Q. Now, at any time during that hour that it took to make those tests did you ever check the concentration of the gas going into this machine?

A. If I recall correctly, in order to prove that point we proceeded through the procedure that you just outlined, and then returned to points 1, 2, 3, and 4 to show that the concentration had remained fairly constant.

Q. You had an assistant, during the deposition, in these tests? A. Right.

Q. What was his name? A. Earl Percy.

Q. Harold Percy? A. Earl Percy.

Q. During that time and throughout this entire

(Testimony of Henry Landsberg.)

taking of this deposition, and testing, was Mr. Percy not continually adjusting the flow into the machine?

A. Adjusting the flow of sample into the machine? [268]

Q. That is right.

A. Absolutely and definitely not. He had no control——

Mr. Lyon: I will read you the record then. Your Honor, seeing that the witness has made this statement, I will have to ask that I be given time to get the record at the noon recess to go on this point.

The Court: Very well.

Q. (By Mr. Lyon): Mr. Percy never changed the volume during these tests?

A. Never changed the volume of what, sir?

Q. Of the gas going into this machine.

A. No, sir.

The Court: By "machine," you are referring to the Titrilog?

Mr. Lyon: Into the furnace. No, into the furnace.

The Witness: Oh, I beg your pardon. I understood, when you say machine—we better get our nomenclature correct here.

Q. (By Mr. Lyon): Didn't Mr. Percy continually adjust the input of gas into your furnace set-up that you were making a test of by——

A. No, sir. He adjusted the flow of the sulphur dioxide into the tunnel at the beginning of the tests. And we made those tests. Then when we started to

(Testimony of Henry Landsberg.)

make the test on the second furnace, with the 3-foot exchanger, we noticed discrepancies and we started making adjustments and found that our bottle of SO_2 had become depleted. That was the only time he made adjustments during the tests.

Q. Then you will admit that if the volume of SO_2 going into the thing varies at any time, your readings would be all off?

A. No, sir. I will—that involves—they will vary, as our records show that it did not remain absolutely constant.

Q. But you don't—

A. But relatively so.

Q. But you don't know whether that concentration was ever remaining steady of any range, do you?

A. Within certain limits I do.

Q. But you made no tests?

A. That it was remaining steady?

Q. Yes.

A. The record shows how steady it was.

Q. How can it when you don't know what you put in? You made no tests to examine what you put into this machine.

The Court: By "into this machine," you mean—

Mr. Lyon: Into the furnace.

The Witness: We adjusted a flow through a capillary, and that flow will remain relatively constant over the period of time that we operated it, as indicated by the record of the [270] Titirlog. How could the record of the Titirlog remain fairly constant?

(Testimony of Henry Landsberg.)

Q. Now, if there was any foreign SO_2 put into the box at the bottom of the furnace, wouldn't that change your rating? A. Any foreign SO_2 ?

Q. Not coming out of the box—out of this bottle.

A. Frankly, we don't care where it is coming from. We just wanted to know how much there was there.

Q. In other words, you wanted to get a certain figure up here so you adjusted the volume control to get it, didn't you?

A. I wanted to get a certain figure where?

Q. Anywhere.

A. I don't believe I understand that question.

Q. Didn't you adjust the control of the volume of gas going into the furnace, the SO_2 , so as to get the figures you would want? A. When?

Q. At any time during these tests.

A. During the tests?

Q. Yes.

A. After the SO_2 rate of flow out of the bottle was set at the beginning of the test, it was not touched again for the entire test of that one furnace. [271]

Q. Now, Mr. Landsberg, at my insistence, did you not make a check on the volume entering the furnace, on the concentration of gas entering the furnace? A. Yes.

Q. And what was that concentration?

A. As I recall, the reading was a gross of 60, which would be a net of 47, since we had a zero level of 13.

(Testimony of Henry Landsberg.)

Q. And yet you have an average reading of the entire concentration that's the same reading, do you not, at the back of the furnace as at your input?

A. Yes.

Q. In other words, there is no air enters this furnace different from which you got down here at the inlet, is there? A. No.

Q. And you got a test of 47 back here (indicating)? A. Average.

Q. Yes. Now then, air does come up—I mean the gas coming in down here at the bottom does come in up around and out these vents 9 and 10, doesn't it? A. I believe some air does, yes.

Q. Did you make tests to find out what the concentration coming out there was?

A. No, we were not interested.

Q. In fact, you are not interested in anything but [272] the figures that you can use, and you don't care how you arrive at those figures, do you?

A. That is what you say.

Q. Well, I am asking you the question.

A. I certainly do.

Q. All right. Did you check the flow out the main grille here? That's the same air that enters the back, isn't it? A. Yes.

Q. And what were those figures?

A. I don't recall actually—I don't recall whether we checked them or, if we did, what the readings were, because that gas is essentially the same as what we test at points 1, 2, 3, and 4.

Q. Isn't it a fact that that gas was way down

(Testimony of Henry Landsberg.)

in concentration from what you were getting in the back when you made the tests?

A. We made our series of tests, went through all the points and made our series of tests, then you requested that we test through a hole in the tunnel in front of the intake grille. At that time the concentration was beginning to be a little bit lower. And shortly after we switched to the other furnace, and we found that the concentration was changing. Investigating that—which more or less proves that we know how steady the SO₂ input was, because as soon as it started [273] varying we immediately started investigating—we knew when it was varying, and we investigated why, and we found that our source of SO₂ was going dry. But that was a period after the complete test was made on the first furnace.

Q. If that is true, how can you get anywhere in this lower box a different reading than the input? You have no other source of air or gas, have you?

A. No.

Q. Therefore, coming out here should have been the same as going in the bottom, shouldn't it?

The Court: Coming out where?

Mr. Lyon: Coming out of the main grille of Exhibit 24-A. That's the part I am pointing to, and where the ticket is written and tied to. It should be the same as in back, shouldn't it?

The Witness: It should be if our source of SO₂ were not being depleted.

Q. (By Mr. Lyon): We'll admit that it is not being. You said it wasn't being. Now you have got

(Testimony of Henry Landsberg.)

a discrepancy from 11 to 60 on your back, on your own reading. A. Yes.

Q. Wasn't that because you were varying the input, or the only way you could get a discrepancy?

A. No, sir. The point at which we got 11 was on the side there.

Q. How do you get the gas up the side then except [274] through the front?

A. There's a question of thorough mixing, and that portion at which the sample, the low concentration sample was taken, I think there is a **block** there and the flow was not as free as it was up the back. And therefore there was a good chance that the air and the SO_2 was not thoroughly mixed at that point.

Q. How do you know that it was thoroughly mixed at any point?

A. That is the reason we did not—the Titrilog—with the Titrilog a test can be made in not much more than maybe 30 seconds. But in order to determine that, that is the reason we ran these tests, each point, for several minutes.

* * * * * [275]

Q. Mr. Landsberg, do you know what ordinary stack pressure in these devices is, such as the heaters in this case? A. No, sir.

Q. Now, before lunch I asked you if you had testified as to what the suction of this tube was. Have you looked over your testimony since?

A. The suction of the Titrilog tube?

Q. As it takes it out of back of the furnace.

(Testimony of Henry Landsberg.)

A. I haven't looked any further than what I stated before.

Q. You say that that is substantially nothing?

A. It may be in the order of one or two inches of water. [276]

Q. Is that greater or less than the suction in the furnace itself that causes the drafts through the furnace?

A. I don't know.

Q. You didn't bother to find out?

A. No, I didn't find out.

Q. Now, Mr. Landsberg, the only concentration of SO_2 that can enter one of these furnaces, with your test, is by means of this opening at the bottom in this main grille here (indicating)?

A. Right, sir.

Q. And then anywhere in this furnace they should have the same concentration of SO_2 , should they not?

A. Not necessarily. The same as what?

Q. The same as you put in down here.

A. Yes. Except there is a possibility that the gas as it enters there is not thoroughly mixed yet.

Q. That is possible, that the concentration in the back isn't mixed, too?

A. It is possible. However, by waiting as long as we could the chances of it being thoroughly mixed are better; and the fact that by testing there for periods of time, and the record remaining relatively stable, it indicated that the concentration was stable.

(Testimony of Henry Landsberg.)

Q. Now, will you explain how you can get a concentration at one point that is five times greater than at another [277] point?

A. It is possible in that the gas has not been—the SO_2 has not been thoroughly dispersed in the gas that happened to enter that particular point, in that there might be some stratification as the gas enters the lower portion. [278]

Q. Now, can you explain to me how you can get a greater concentration at any one of these points 1, 2, 3 and 4 than you had at the inlet?

A. The reading at the inlet is not thoroughly, as thoroughly reliable as the one—those at the back, in that the longer you wait, allow the gas to travel, the more thorough the mixing.

Q. But you did get a lower reading at the input than you did up in the back, didn't you?

A. We got a lower reading at the input after the tests, a long series of tests had been completed. And immediately following that test, when we started the second test on the 3-foot furnace, with the 3-foot economizer, there was a continuation of that dropping in concentration, which immediately proved out to be the fact that the source of SO_2 had become more or less depleted.

Q. Now, you also took tests, did you not, of the SO_2 concentration right down here underneath at the bottom of the inlet into the space between the back of the furnace and the wall, did you not?

A. Yes. The tube there was introduced, though, just a very small amount into that space.

(Testimony of Henry Landsberg.)

Q. And what was the reading then?

A. The reading was, as I recall, very low; if anything at all. [279]

Q. And again you hadn't checked the input?

A. Hadn't checked what input?

Q. The input into the machine, into the furnace, to determine whether or not you still had the same concentration at the input.

A. Yes. I believe we did come back to the input. I don't recall the exact sequence as to how those points were taken, but we did take tests, for instance, as to points 1, 2, 3 and 4; go through some other testing and come back to points 2 or 3, and noted that the concentration was relatively the same.

Q. Now, how did any other gas get in down at the bottom here so as to dilute that SO₂ down there?

A. I really don't know, other than the fact—I don't know if any other gas got in there, but again there is the possibility that could have been stratification. Also that there was a dead space there and no mixing, because the sample tube was just barely penetrating the wall at that point.

Q. Now, when we made the smoke tests at the same time as these others, did you not see gas coming from these openings, 9, on Exhibit 24-A, and spilling over into 7, or from 10 and into 8?

A. I recall seeing gas spill out of the points, I think. What are they, 9 and 10?

Q. That is right. [280]

A. I am not sure that I saw gas spilling into 7 and 8. Although I assume some of that gas did get

(Testimony of Henry Landsberg.)

into those two points. And that is the reason we took into consideration the concentration of the SO_2 in the gas entering those two points.

Q. Now, why did you choose these points 1, 2, 3 and 4 on the back of here?

A. Those points were chosen because we had initially introduced the SO_2 through the tunnel. We then checked the point—the gas, flue gas from the grille, upper grille, and we found that it had a relatively high concentration. The question then was where was the concentration coming from. The possibility was that some of it was getting in through points 7 and 8. We checked those points and found that some was getting in there but not near enough to account for the concentration in the gas coming out of the upper grille. Therefore, it had to be coming from another source. The only other possible source was up the back. So we tested there with the idea of testing as far up that portion of the furnace in order to get as stable a reading as possible.

Q. Now, why didn't you take some points down here (indicating)? You have got four here that vary widely. Wouldn't it have been better procedure to have taken a multiplicity of possibilities? [281]

A. On the back you mean?

Q. Yes.

A. We were trying to get the profile or cross-section of the concentration, and the longer the passage of this air and SO_2 , the better the possibility that it was thoroughly dispersed. Therefore, we took

(Testimony of Henry Landsberg.)

it as far up as we could. If we had taken it down below, it is possible that those readings would have been just as good. Although, it also was possible that the concentration would not have remained as constant because of mixing.

Q. Then this proposition of mixing is actually what the thing determines; if it is mixed well it gives you a high reading and if it is mixed poorly, it gives you a poor reading?

A. Not necessarily. If it is not mixed well, there might be a fluctuation between a high and low reading, and the fluctuation might be rather large.

Q. Well, when you took the reading down here at the bottom, at the inlet, did the readings fluctuate any more in proportion than they did when you took the readings at 1, 2, 3 and 4?

A. The reading down at the bottom, we hardly got any reading. And the only explanation I have for that is that the test—the tube through which the sample was being drawn was just barely into that space, and it is very possible that that [282] was a dead space, and the only air that was coming in was just by-passing that, and that air was not moving. It was of no great concern to us in that the experiment involved the passage of two sources of air in order to find out what the relative concentrations of those two sources were in the gas coming out the upper grille, and that point was not one of the sources. [283]

Mr. Lyon: Just a moment, your Honor. I want to see whether I am through or not.

(Testimony of Henry Landsberg.)

Q. (By Mr. Lyon): Now, did we not make a test of this SO_2 content at the opening out into the attic, up here, for example, on top of these (indicating)? A. Yes.

Q. What was that reading?

A. I don't recall what the exact reading was. I think it was lower than the reading up the back. And that was very probably due to the fact that there is additional air entering from the upper portion of the grille, upper grille——

Q. But there was considerable——

A. ——and a dilution.

Q. —— SO_2 coming out, was there not?

A. I think, if I remember correctly, there was some, yes.

Q. If this SO_2 stratifies, as you say, and runs in different concentrations up the back, why would it not be normal to use the highest concentration up the back to make the calculations, rather than an average from the one that is one-fifth off?

A. First of all, I am not claiming that it stratifies up at that portion of the furnace, in that the air and gas, the tracer gas, SO_2 , have moved through a long passage, it has [284] been subjected to some warmer conditions in which case the SO_2 can disperse more readily, and to use any one reading—the fact that that one was low seems to indicate that possibly that point, through that particular channel the motion of air wasn't very good. However, the idea is to get the average concentration going

(Testimony of Henry Landsberg.)

through there, so that it will be more representative.

If you recall the other three readings did not deviate very greatly, except for that one, and also on the second test, on the three-foot furnace, all four readings were quite similar.

Q. Now, you say it doesn't stratify in the back there up that high?

A. No, it wouldn't stratify. There might—

Q. Then if you have nothing else but a mixture of SO_2 entering it, can you get a difference in concentration up here on one side or any other part, unless you have got stratification?

A. There is a possibility you might get some stratification below, because there are temperature differences, whereas as you travel up the back you have come to a pretty—all of the gas has come to an equilibrium temperature, whereas the gas coming up the side might have been from a different stratum and going up the back on that side, that side channel. [285]

Q. Now, the same thing, you have a very wide difference in reading in your readings coming out these points, you have very high ones at 5-A, 5-C, and 5-B you have almost half the concentration, now you can say that in one of those you can have a difference?

A. That gas is now mixing with another gas.

The Court: What do you mean by "now"?

The Witness: Well, sir, originally we have been speaking up till now of the mixing of the tracer,

(Testimony of Henry Landsberg.)

SO₂, with the air that is going up the back of the furnace. Now the portion of this mixture, which is getting into the upper heat exchanger, now has to mix with the air that is coming in through points 7 and 8.

Q. (By Mr. Lyon): Well, I submit to you that this is true, that you should have figured and used the method of calculations that you did on your highest and lowest readings, instead of your lowest and highest as you have done.

A. I haven't used it on my lowest and highest.

Q. Why, you have used the figure 11 at the bottom and you used the figure 16 at the top.

A. No, sir. I used averages.

Q. Yes, but that certainly gives you way below your mean. If you throw in one small figure—you take test points of a dozen or more on a machine here, and you get one out of line like that, you usually throw it out, don't you, [286] in any mathematical calculation, that that is a faulty reading?

A. You are referring to repeating a test at one point. If we had made four tests at one point, and one was way out of line, according to mathematical calculation, we would have thrown that one out. But this is not a repeat of one point.

Q. Have you ever repeated this test that you have testified to?

A. Yes, we did that several times, with approximately the same results.

Q. What figures did you get?

(Testimony of Henry Landsberg.)

A. I don't recall the exact figures, but all within the same order of magnitude.

Q. You always got this same drop-out on one side and in the center?

A. I don't recall whether we did or didn't.

Q. Have you the figures for those tests around?

A. I haven't, no.

Q. Now, you have testified that on the tests on the four-foot economizer, at the closing of your test you discovered the gas in the bottle was running out, didn't you?

A. We hadn't yet.

Q. Was it?

A. It had perhaps just begun, because it wasn't really [287] evident until we set up and adjusted and started making tests on the three-foot economizer, during which time a considerable amount of SO_2 had been going out of the bottle. However, in going back and testing in front of the tunnel or in front of the inlet in the tunnel, it was somewhat lower, not drastically lower, than the concentration up the back, so it appears that it had just begun to start going dry. Understand that this bottle has fairly high pressure on it, and even after it is beginning to deplete it can still go for some time before it really shows a small amount.

Q. You don't know, then, when you made your tests up at the second—up at the top of the economizer, whether the gas supply was getting weak, or not, then?

A. It couldn't have been very weak, because after we completed that test, and then came back

(Testimony of Henry Landsberg.)

and tested in front of the inlet, it was still quite high.

Q. Wasn't it a fact that it was off approximately over a fifth lower than the concentration in the back of the machine?

A. The net reading in back of the machine was, I think, an average of 47; the net reading in front of the inlet was, I think, 43. Now, no, excuse me; 47, too.

Q. To refresh your memory, the highest concentration you got in back of the machine was 60, and at the entrance it was 47. Do you care to have me read the record? You got 60, as you testified, up here, today? A. Yes.

Q. And 47 down here? A. Right.

Q. Now, how can you state that you could get a higher concentration of gas anywhere in this machine than you had at the opening end of the machine?

A. I think I have repeated this about three times now, that we are running the gas up the back from the bottle, we establish that concentration, we establish other concentrations, we made other tests, time went by, we then tested in front—the tests had been completed, we then came back at the request of Mr. Lyon and tested the concentration of the gas just as it is entering this inlet (indicating).

The Court: This inlet is what?

The Witness: The inlet to the lower portion of the furnace.

The Court: The furnace box?

(Testimony of Henry Landsberg.)

The Witness: The furnace box.

The Court: The front inlet, lower?

The Witness: Yes, sir. And that was somewhat lower than we were getting up the back. Shortly after that we moved over and started making our tests on the furnace with the three-foot exchanger. As we tested points 1, 2, and 3, we noticed that each one was subsequently lower than the previous [289] one. That immediately let us know that our source of SO_2 was going dry. And sure enough in checking that, that was true. And we did not resume our tests until we had another source of SO_2 .

Q. (By Mr. Lyon): Isn't it a fact that when you made your tests on the three-foot furnace after switching the matter over, the first two tests at the points 1, 2, 3, and 4—and I can't remember whether they were points 2 and 3 or 1 and 4—but when you made your tests there, they came out the same as after you got a new bottle of gas? It was only on the third or fourth test that you got any change?

A. Why don't we look at the record? [290]

Q. I am asking your testimony of the thing. If you have a record, check it.

A. My memory may slip me, whereas the record will speak for itself.

The Court: Do you have the record?

The Witness: Yes, sir.

The Court: You may refer to it. What is the record?

The Witness: Exhibit 6.

The Court: Very well. You may refer to it.

(Testimony of Henry Landsberg.)

The Witness: The beginning of the record—the record shows that the points were tested in the order of 1, 2 and 3. In setting up the point that was taken in front of the instrument to the furnace, when we get a reading of a net of 47, which was somewhat lower than what was gotten at the back, we had no idea of why that happened. Then we moved over to the other furnace and started testing. In starting testing the other furnace we made adjustments on the valve on the bottle that contained the SO_2 . We adjusted it by opening it to start to give us an appreciable reading on the chart. We didn't care where, but just a good reading. So we opened it and we got a reading of 60—that's a gross reading of 60—so that the concentrations of this test would be in the same order of magnitude as those in the first test. We opened that to give us the 60 so as to have that type of concentration.

But by opening it, the bottle depleted that much more [291] rapidly, and you can see that points 1, 2, 3 and 4 are successively smaller. The fact that we got on the first point that we tested, that it gave us the same reading as it did later when we had a full bottle, that is merely a matter of adjustment.

Q. (By Mr. Lyon): That is my point, Mr. Landsberg. You adjusted that bottle every time you made a reading, during that test, didn't you?

A. You were there. Why did you allow that?

Q. It was your test, not mine. I always claimed it was faulty.

A. We never adjusted the bottle other than at

(Testimony of Henry Landsberg.)

the beginning of each test. It was adjusted when we moved it, because it was adjusted—well, as I said before, we adjusted the bottle and started a series of tests. That bottle was not touched during the running of a series of tests; never.

Mr. Lyon: That is all of this witness, your Honor.

The Court: Any redirect examination?

Mr. Christie: Your Honor, I was not present at the time that these tests were made. I wonder if you would have any objection if Mr. Hoegh asks the questions on redirect?

The Court: No, he may. [292]

Redirect Examination

Q. (By Mr. Hoegh): Mr. Landsberg, directing your attention to Exhibit 5, which is the large cross-sections of the heaters, would you indicate where the position of the tube was which Mr. Lyon asked about as being underneath the back of the furnace?

A. Shall I mark it?

Q. Yes.

A. As near as I know, it was back in this corner (indicating).

The Court: What legend do you wish to put there? "Tube"? Has that legend been used?

Mr. Hoegh: We are using numbers for the sampling points, your Honor. We are using that point as "just under the burner," I believe it was described during the deposition. It was not used on the basis of this calculation, when it was made. It

(Testimony of Henry Landsberg.)

is one used when Mr. Lyon asked that certain test points be marked.

The Court: The figure 1?

Mr. Lyon: Just "under the burner" is the way it is referred to in the deposition.

The Court: Very well. Will you write "under the burner" there?

The Witness: All right, sir.

Q. (By Mr. Hoegh): Mr. Landsberg, would you explain [293] why you know there were dynamic conditions existing in the air at the back of the box?

A. Well, first of all, in using some smoke tests, in making some smoke tests, that is, we introduced a tracer which was visual, you could see the smoke moving up. Secondly, the fact that in testing, the gas coming out of the upper grille, the concentration of SO_2 was appreciably greater than that which was coming in through points 7 and 8, and therefore had to come from another source; the only other source being up through the back. And therefore there must have been flow.

Q. During the examination of Mr. Lyon, I believe he suggested to you that the time for each test point was five minutes. Would you go through the record, please, and read just what the time for each test point was?

A. Yes. The recorder which records these, makes these records, has a two-speed system on it.

Q. Which exhibit are you referring to now?

A. Well, I haven't—I will be referring to Exhibit 6. Under normal operations, that is, the Tit-

(Testimony of Henry Landsberg.)

rilog as it is used in practically all applications that I have been familiar with, the chart speed is set so that test units as they are marked on the side of the chart of Exhibit 6, 1, 2, 3, and so on, are hours. However, we used the high speed on this test in order to show the slight fluctuations or emphasize [294] them, and the chart speed is such that the hours are now minutes. Therefore, the times that I think Mr. Lyon mentioned about an average of about five minutes per test is off by about a factor of 2, in that, for instance, in the first test point—

Q. Which test was that?

A. On the 4-foot furnace. Test point No. 1 was run for approximately two and a half minutes. Test point No. 2 was for approximately 2 minutes, including a recheck on the zero. Test point No. 3 was approximately two minutes. Test point No. 4—well, then there was zero for approximately one minute, and test point No. 4 was for about two minutes. Then we rechecked test point No. 1 for a period of about a minute and a half.

Incidentally, there's a pretty good check between test point No. 1, at the beginning of the test, and test point No. 1 now.

Then we tested test point No. 5-A for a period of a minute and a half, including the zero; 5-B about a minute and a half; 5-C for perhaps two minutes. And then we made another test with no funnel at 5-C for about two minutes.

Test point No. 7 was tested for about three minutes. Test point No. 8 about 5½ minutes.

(Testimony of Henry Landsberg.)

Q. Does that complete the series of the tests?

A. On the 4-foot economizer, yes, that completes the [295] test.

Q. Would you explain what the next test in the sequence of the record is, please?

A. Then we tested points—the next on the record here?

Q. Yes, on the record.

A. What we called points 1-X and 2-X—or X-2, rather.

Q. What were those?

A. Those points were the concentration of the gas coming out of the grille on Exhibit 24-A below points 7 and 8. Then we made the test under the burner, which showed very little. Then we tested the point of what we called point 11, which was in the tunnel just as the gas entered the box. And then we made various points on the flue, and so forth, outlet to the attic, for several minutes. And then we started our second set of tests in which we adjusted the bottle again to give us a reading up around 60 or 70, so that the tests would all be in the same order of magnitude. But the concentration as we got to 2, 3 and 4 was dropping.

Q. What is the next sequence of tests after that where the bottle was dropping?

A. Pardon?

Q. What is the next sequence of tests after the bottle was dropping?

A. Well, we did check 5-A and -B and -C at that

(Testimony of Henry Landsberg.)

time, [296] and that, too, was dropping, was lower than normal—than it had been, rather.

Then we waited and got a new bottle and again set the bottle to read around 60. And then the bottle was left there and point 1 was tested for approximately two and a half minutes.

Q. Which heater are you referring to now?

A. This is the heater with the 3-foot exchanger. Point 2 was tested for approximately two minutes. Point 3 was tested for about two and a half minutes. Point 4 was tested for approximately two minutes, including a zero check. Point 5-A and a zero took about two minutes. 5-B about a minute and a half. 5-C about a minute and a half. Point 7 about two minutes, or two and a half minutes. Point 8 approximately 3 minutes. And we rechecked point 2 again for about two and a half minutes.

And that was that series of tests.

Q. Now, Mr. Landsberg, what instructions were given you when you were asked to set up these tests?

A. Well, about the only instructions—

Mr. Lyon: That is objected to as hearsay, your Honor.

The Court: Overruled. It is offered for the purpose of, I take it, showing the instructions under which the agent acted.

Mr. Hoegh: Yes, sir. [297]

The Court: You may answer.

The Witness: I was asked if we had a means of determining how much, if any, of the gas that was

(Testimony of Henry Landsberg.)

coming out of the upper grille came up the back of the furnace. At first I thought that we would use a mass spectrometer for this purpose, and use a tracer gas, some other tracer gas. However, the only one that was feasible would have been helium. Helium is considerably lighter than air and it might have traveled independently of the air and given questionable results, in favor of the test you might say.

So, we also have this Titrilog, this instrument, and it can operate on sulphur dioxide and much smaller concentration than the mass spectrometer. Also, sulphur dioxide is considerably heavier than air and therefore would not diffuse independently of the air, and we could operate with extremely low concentrations so that it would be insignificant as compared to the total flow. And so the Titrilog was used for this purpose. And——

The Court: What were your instructions? That is the question.

The Witness: The instructions were to determine how much, if any, of the air that was coming up the grille came up the back of the furnace.

The Court: Come up what grille?

The Witness: The upper grille. [298]

Q. (By Mr. Hoegh): The economizer outlet grille? A. The economizer outlet grille.

Q. I believe you read the record as to the sequence of testing points. Did you go back and check points 1, 2 and 3 after you had taken some records

(Testimony of Henry Landsberg.)

to see whether or not the values were fairly constant?

A. Yes. Beginning—we would go back—I have forgotten whether we go back to 1, 2, 3—but we went back to, I know, some of the points in the back, in other words, to determine whether the concentration was the same as we started, to see how constant it was staying.

Q. Would you calculate the percentage of the air coming out the economizer outlet grille that comes from around the back of the heater, using the highest values and the lowest values, for the 4-foot economizer?

A. This is on the 4-foot?

Q. Yes.

A. All right. I will use for C_1 the highest, which is 60; and C_2 has remained constant at 7; C_3 , the highest would be 37; and C_2 is the same, 7, which would be 30 over 60, or 50 per cent that X is of V , or the amount of gas coming out of the upper grille is—50 per cent of it is— X is 50 per cent of the amount that is coming up the grille, as coming up the back, on the basis of these figures.

Now, if we used the lowest, then 60 becomes 11 minus 7, and this lowest was 16 minus 7. And that would be 8 over 4, and that would hardly be possible.

Mr. Lyon: That would be twice as much coming out as went in?

The Witness: Right.

Q. (By Mr. Hoegh): Will you take the lowest

(Testimony of Henry Landsberg.)

reading coming out at the top, that would be the economizer outlet grille, and the highest reading going up the back?

A. The lowest out the top?

Q. Yes.

A. Wait a minute. This isn't quite right here. Now, back up on the highest figures, I made a mistake here. That would be 53. That percentage would be close to 57 that we had originally. I am backing up to my original calculations on using the highest values.

The Court: The highest values show around 60 per cent of the area that came out the top of the grille originated behind the lower furnace box?

The Witness: Right, sir.

And using the lowest at the top and the highest at the bottom would be 8 over 53, which would be about 15 per cent.

Q. (By Mr. Hoegh): Did you make any tests of velocity coming out the discharge grille of the economizer, velocity of air? [300]

A. No.

Q. Did you observe any tests?

A. Yes, I saw some tests being made.

Q. Were they run under your supervision?

A. Well, I observed them.

Q. Who ran those tests, Mr. Landsberg?

A. Mr. Hollingsworth.

Q. With respect to the three-foot economizer, Mr. Landsberg, would you calculate the percentage of air coming out the economizer grille which originated around the lower box, using the highest

(Testimony of Henry Landsberg.)

figure of points 5-A, -B, and -C—rather, the lowest figure of points 5-A, -B, and -C, and the highest figure of points 1, 2, 3, or 4.

A. It would be about 22 per cent.

Q. I believe during your examination by Mr. Lyon you testified that you were not interested in the amount of air coming out through points 9 and 10; would you explain why those points are not of interest, or the amount of air coming out of there is not of interest?

A. Well, the gas—as we started out originally, the gas that is coming out, the air that is coming out of the upper grille is coming from two sources, that is, two possible sources, one of which we know for sure is 7 and 8, through the upper—this louvre on Exhibit 24-A, and then there is a possibility that there is air going up the back. [301] And there is no other means of other air entering into—there is no other source of air for this air that is coming out the upper grille. Therefore, it was our purpose to trace the air that possibly could get into that grille. And since this does not get into it directly, other than by perhaps coming back and going in through 7 or 8, what comes out there is of no significance to the tests. It is significant, though, if it gets back in this way (indicating).

The Court: By “this way” you mean—

The Witness: In through points 7 and 8. And, therefore, we tested those points to account for the pickup of sulphur dioxide in the air that is entering at that point.

(Testimony of Henry Landsberg.)

Q. (By Mr. Hoegh): During these tests was there any source of sulphur dioxide being injected into the tunnel than the SO_2 bottle which you used?

A. Was there any other SO_2 ?

Q. Yes.

A. Being introduced into the tunnel, other than that which we introduced?

Q. Yes.

A. No, other than perhaps a very small amount that might have gotten into the room air. And that of course was all mixed up with the air in the tunnel, and would have been accounted for in our determinations at points 1, 2, 3, and 4.

Q. Did you make frequent tests of the sulphur dioxide [302] content of the room air?

A. We made frequent checks of the sulphur dioxide in the room air by periodically—I would like to back up on what I just said a minute ago, in that the amount of sulphur dioxide that might have been getting into this system from the room is automatically accounted for by the fact that we use that as our reference level, in that the zero on the instrument was established by pulling room air through the titration cell. So we were measuring everything over and above that which might be in the atmosphere in the room?

Q. How were the net readings derived?

A. The net readings were derived by subtracting that zero level, as we call it, from the gross reading, to arrive at the net readings.

The Court: Before each test run——

(Testimony of Henry Landsberg.)

The Witness: Right, sir.

The Court: —you established an equilibrium of zero?

The Witness: Right, sir. That remained practically constant throughout the test, but we still periodically checked it.

Mr. Hoegh: That is all, your Honor.

The Court: Recross?

Mr. Lyon: I have just a couple of questions, your Honor. [303]

Recross Examination

Q. (By Mr. Lyon): Mr. Landsberg, take the burner, Exhibit 24, and put it in approximately the position it is when the furnace is assembled.

A. This burner here?

Q. I believe that is the one you testified was used, did you not? A. Yes.

Q. Now, will you put that in its usual position?

A. I assume it goes in under here about like so (indicating). I have never taken it apart. With the burner up into this chimney.

Q. Would you say that that is in the correct position now?

Mr. Hoegh: I would like to look at the installation instructions, Mr. Lyon.

Mr. Lyon: Would you? Because I want this exactly where that burner belongs.

Mr. Christie: Your Honor, Mr. Hollingsworth can install it if Mr. Lyon has no objection.

Mr. Hoegh: It is Exhibit 26.

(Testimony of Henry Landsberg.)

Mr. Lyon: I don't know exactly. I think these gentlemen can agree.

The Court: Is it agreed now, gentlemen? [304]

Mr. Lyon: Mr. Hoegh or Mr. Christie, can we agree that this is the position the burner would be in when it was assembled for operation?

Mr. Hoegh: Yes.

The Court: By the burner you are referring now to Exhibit——

Mr. Hoegh: 24-C, your Honor.

Q. (By Mr. Lyon): Mr. Landsberg, you have testified here that when you put a tube in and called it under the burner, you merely stuck it in through the glass about so far (indicating), haven't you?

A. At the point that we measured down there?

Q. Yes. A. Yes.

Q. And that is what you have shown on Exhibit—I note you show this in here (indicating).

The Court: Figure A on Exhibit——

Mr. Lyon: 5.

The Witness: Exhibit 5, yes.

Q. (By Mr. Lyon): Now, actually was that tube not way in under the burner, in where I am now drawing a round circle that I will mark "X"?

A. No, sir. I think there was a misunderstanding. That was your intention of having us do that, I think I realize now. [305]

Q. I will read you the record, Mr. Landsberg.

The Court: Just a moment. Let the witness finish. Had you finished your answer?

(Testimony of Henry Landsberg.)

The Witness: As I was saying, I think that is the way Mr. Lyon intended us to do it, but there was some misunderstanding, and when we made the test it was not in all the way like that.

Mr. Lyon: All right. I will read you the record, Mr. Landsberg, and then see what you have to say.

The Court: Is this from the deposition of the witness?

Mr. Lyon: This is your deposition taken on July 26, 1954.

The Court: Let's place it before the witness. Let it be placed before the witness.

Mr. Lyon: Page 24.

The Court: What portion of it do you wish to direct his attention to?

Mr. Lyon: On page 24, your Honor.

The Court: What lines?

Mr. Lyon: I will refer you to line 19 on page 24.

The Court: Will you read it to yourself and let us know when you have finished?

Mr. Lyon: Continuing through to line 7 on page 25.

The Court: Have you finished reading?

The Witness: To page 27? [306]

Mr. Lyon: Page 25, line 7.

The Witness: Yes, I have read that.

Q. (By Mr. Lyon): And you still repeat that the tube only went in approximately a quarter of an inch underneath through the back?

A. I am going simply by memory now, because it says nothing here as to how far it was in, whether it was as you say or as I say.

(Testimony of Henry Landsberg.)

Q. Didn't you agree with me, when I said—I would like to read this to the court.

The Court: You are reading the portion heretofore indicated?

Mr. Lyon: Yes, into the record.

"Mr. Lyon: Will you try it? You are now going to make a test at a tube that goes in adjacent to the burner approximately—no, wait a minute now. Where would you describe that, Mr. Landsberg?

"A. Which one did you want? This one is coming in and up to here.

"Mr. Lyon: Where does this one go?

"A. Straight through.

"Mr. Lyon: Where to?

"A. Into the bottom.

"Mr. Lyon: Just under the burner? [307]

"A. Just under the burner."

The Court: Has that deposition been marked as an exhibit here?

Mr. Lyon: Not as yet, your Honor. I will place it in evidence later. Or I will offer it as Defendant's next in order now, if I may have the original from plaintiff.

Mr. Hoegh: The witness has it, Mr. Lyon.

The Court: Is there objection?

Mr. Christie: No objection, your Honor.

Are you offering the entire exhibit?

Mr. Lyon: I am offering the entire exhibit, and the exhibits attached thereto.

The Court: Has it been marked heretofore?

Mr. Lyon: It has not, your Honor.

(Testimony of Henry Landsberg.)

The Court: It will be received as Defendant's Exhibit V—would that be it, Mr. Clerk?

Mr. Lyon: No, your Honor. I believe it will be V. I thought you said B.

The Court: V as is very.

The Clerk: S, T, and U are all that the defendants have. From A to R there is nothing.

The Court: A to R is on the list attached to the pretrial statement filed October 22, 1954. So this will be Exhibit V. And the exhibits attached to the deposition will take the identification— [308]

Mr. Lyon: I think they are already in evidence, your Honor.

Mr. Hoegh: May I point out that the photographs, Exhibits 29, 29-A, 29-B, 29-C, 29-D, and 29-E are the photographs that were attached to Mr. Landsberg's deposition as Exhibits 2, 6, 7, 8, and 9, and that the furnace test records, which are Plaintiff's Exhibit 6, were attached to Mr. Landsberg's deposition as Plaintiff's Exhibits 3, 4, 5,—1, 3, 4, and 5, your Honor.

Mr. Lyon: That is satisfactory, your Honor.

The Court: I take it, then, the exhibits which are attached to the deposition Exhibit V, in so far as that deposition is concerned, will have the same identification as is set forth in the deposition, necessarily?

Mr. Lyon: That is correct.

The Court: But with this cross reference to the exhibits which duplicate them, which are now in evidence.

(Testimony of Henry Landsberg.)

Mr. Lyon: Yes.

Mr. Hoegh: Yes.

(The exhibit referred to was marked Defendant's Exhibit V, and was received in evidence.)

[See page 629.]

Q. (By Mr. Lyon): You have figured per cent. Taking the highest and the lowest in both positions, would you take the highest position in **back on the** No. 4 and the lowest position at the outlet of the economizer? [309] A. Which furnace?

Q. On the four-foot furnace.

A. Would you repeat that? The lowest——

Q. The lowest at the outlet of the economizer. What is that figure that you have?

A. The lowest would be 16.

Q. Right. And the highest at the back of the furnace? 16 minus 7, isn't it?

A. About 15 per cent.

Q. All right. Now, there is considerable difference between 15 and 57 per cent, isn't there?

A. Yes.

Q. Now, Mr. Landsberg, you also took readings at the outlet of the lower heater, which is where this tag is on Exhibit 24-A, did you not?

A. Yes, we took some readings there.

Q. And those net readings were 49 and 52, were they not?

A. I don't recall exactly, but in that order of magnitude, yes.

Q. Would you please check that, because I want

(Testimony of Henry Landsberg.)

it on the record. That would be points X-1 and X-2, would it not?

A. Right. We have here X-1 a gross of about 64, less 13, would be about 51 or 52; and at X-2 about 65 average, for a gross of 52. [310]

Mr. Lyon: That is all, if your Honor please.

The Court: Any further questions?

Mr. Hoegh: Yes, your Honor, if I may.

I would like to offer as an extension of the remarks which Mr. Lyon read into evidence the following portions of Mr. Landsberg's testimony. These relate to the same subject-matter to which Mr. Lyon was directing his attention.

The Court: It is all now in evidence.

Mr. Hoegh: I would like to clarify the statement that was read.

The Court: Do you wish to read a portion into the record at this point?

Mr. Hoegh: Yes, your Honor.

The Court: You may.

Mr. Lyon: What pages, please?

Mr. Hoegh: Page 91.

The Court: Commencing at line——

Mr. Hoegh: 4, through line 11. Mr. Lyon was interrogating the witness at that time.

“Q. How would you get any more? You measured right here at the only inlet under the burner to that back flue.

“A. That sample was taken at the very bottom one-half inch in.

“Q. No, I beg to differ. We ran it under the

(Testimony of Henry Landsberg.)

[311] burner, put it under here at the time it was made.

"A. No, no."

The Court: Is there anything further from Mr. Landsberg?

Further Redirect Examination

Q. (By Mr. Hoegh): Mr. Landsberg, from the tests that you observed of the velocity of air coming out the upper discharge grille of the economizer, were you justified in taking an average of the readings at that point?

A. Yes, as I recall it was pretty constant across there.

* * * * * [312]

Mr. Hoegh: The first is from the deposition of Mr. [313] Sheldon Coleman, deposition taken in Wichita, Kansas, on April 6, 7 and 8. The deposition marked as Plaintiff's Exhibit for identification number 9 contains the testimony of four individuals, Mr. Sheldon Coleman, Mr. Harry Giwosky, Mr. Jack Kice and Mr. Charles Taylor Gale. The questioning is by Mr. Christie at this point.

Mr. Lyon: What page?

Mr. Hoegh: On page 19. Unfortunately the reporters in Wichita don't number the lines. It is about a third of the way down the page.

"Q. Now, is this economizer one of the unusual features that you referred to in the annual report on page 15?

"A. Yes, I would say so.

"Q. Are you familiar with the Holly heater, which has a secondary heat exchanger, Holly being the plaintiff in this action?

"A. I am not familiar in extreme detail. I have seen the Holly unit. I am familiar, generally.

"Q. Would you know when you first saw one?

"A. No, I don't believe I recall when I first saw one.

"Q. Can you tell me whether it was before or after you began the manufacture of this unit?

"A. It was before. [314]

"Q. It was before? "A. Oh, yes."

Beginning on the second line of page 20—oh, I haven't checked to see whether there have been any corrections made in this, Mr. Lyon. I am reading from our copy.

Mr. Lyon: Your Honor, why can't we deem these read into the record and just submit the pages, and so forth. I don't believe there is any reason to have to read this whole deposition into the record.

The Court: There is no necessity for it. However, counsel may proceed as he desires.

Mr. Hoegh: Your Honor, the reason for proceeding in this way is an attempt to keep the record down. We could mark the portions of the deposition to be copied by the reporter if you wish.

The Court: Are they extended?

Mr. Hoegh: No, sir.

The Court: Well, proceed.

Mr. Hoegh: I note there are no corrections on the portions which I have just read.

Now, the second line on page 20.

The Court: The next portion is commencing at the second line on page 20?

Mr. Hoegh: Yes, sir.

"Q. Does your organization have a group which [315] is known as the New Products Committee?

"A. Yes.

"Q. What is the function of the New Products Committee?

"A. Well, they are supposed to review the experimental work that is being done, to determine what new products the company wants to market. Also, they determine, at least in an advisory way to the president, the products we might work on experimentally.

"Q. Do you know whether or not it was a decision of the New Products Committee to go into wall heaters with economizers or secondary heat exchangers?

"A. Well, this should probably be understood. The New Products Committee in the Coleman Company is not an administrative committee; it is an advisory committee to the President.

"Q. Do you know whether the committee advised you to go into the manufacture of wall heaters with secondary heat exchangers?

"A. With our economizers?

"Q. Yes.

"A. Certainly, that's right, they did."

Now, turning to page 23, the third line from the top. [316]

"Q. Does the committee, when it advises you that it believes that it would be a good idea to make a

new product, the initial advice to you, is this greatly detailed or do they simply say in effect, 'We think it would be a good idea to put a secondary heat exchanger on top of our wall heater,' or how does this go, and what happened in this instance, if you know?

"A. As I explained initially, the problem of greater B.T.U. outlet from stud faces was common with the entire industry, and then the problem is what is the best way to do this, and many people have different ideas as to how to accomplish it. We work a great many and many are rejected, and the committee, which has some people from our sales organization on it, wanted a certain field result, and it was up to the design division to produce the best unit, after experimenting with many units, to accomplish this result.

"Q. Was this advice from your New Products Committee inspired by the Holly heater which you had seen prior to the time you went into the manufacture of your devices?

"A. I would say primarily not, but certainly the action of any competitor has a bearing and [317] influence on what we do, and I assume that we, too, would have an influence on our competitors."

I would like to turn now to the deposition of Mr. Harry Giwosky, which was taken later during the same time that Mr. Coleman's deposition was taken, page 106 of Plaintiff's Exhibit No. 9 for identification. It is the second line from the bottom on page 106.

"Q. Mr. Giwosky, when you designed the Cole-

man heaters, Nos. 64, 67, 68 and 69, had you seen a Holly heater with a secondary heater exchanger?

"A. Yes.

"Q. And had you seen the Holly patent, which is in issue here? Are you familiar with the patent?

"A. No, I am not too familiar with the patent. I don't understand too much about them.

"Q. Had you seen the patent at the time you made the design?

"A. No, I don't believe so.

"Q. But you had seen the heater?

"A. Yes.

"Q. That is, the one that has, what Holly refers to, the secondary heat exchanger?

"A. Yes. It is our practice to get all our competitors' heaters in; we make it a business to get every heater. [318]

"Q. Did any other heaters come on the market with a secondary heat exchanger?

"A. Not to my knowledge.

"Q. Holly was the only one?

"A. As far as I know, that is right".

That concludes the reading of those portions of that deposition, your Honor. I did not read the portions which identify the witnesses. However, I am sure Mr Lyon will agree that Mr Sheldon Coleman is the president of the Coleman Company and Mr. Harry Giwosky was chief design engineer for the Coleman Company.

Mr. Lyon: I will modify the last part. I will agree as to Mr. Coleman, but Mr. Giwosky was just one of the design engineers, not the chief.

The Court: Do you accept that stipulation, Mr. Hoegh?

Mr. Hoegh: Perhaps I'd better read Mr. Giwosky's identification of himself, your Honor.

Mr. Lyon: But Mr. Coleman, Sheldon Coleman, whose deposition he read, is the president and was at the time of the design of the defendant.

Mr. Hoegh: Would you stipulate Mr. Giwosky was the design engineer in charge of the project to design the Coleman wall heaters with the economizer?

Mr. Lyon: I will stipulate to that.

Mr. Hoegh: That will be satisfactory. [319]

I would like to mark for identification as Plaintiff's next in order Coleman Annual Report for 1952.

The Court: That will be Exhibit 10?

Mr. Hoegh: Yes.

The Court: Is it stipulated to be a true copy in all respects of what it purports to be?

Mr. Lyon: Subject to correction of error.

The Court: You offer it in evidence?

Mr. Lyon: I object to the materiality. I don't know why this is added to pad up the record.

Mr. Hoegh: The testimony of Mr. Coleman, which I just read, refers to a certain portion of it on page 11, I believe.

Mr. Lyon: You didn't read that into the record.

The Court: Do you wish to offer the entire report?

Mr. Hoegh: Yes, sir.

The Court: The objection is overruled. It may be received in evidence.

(The document referred to was received in evidence and marked as Plaintiff's Exhibit No. 10.)

[See Book of Exhibits.]

Mr. Hoegh: The particular portion to which Mr. Coleman made reference is on page 15 at the top, the description of wall heaters.

"New models just introduced have improved appearance and some unusual features that make for higher heating performance. The wall heater feats in the wall, uses no room space and heats one or more rooms. Multiple installations make it possible to enjoy zone heating at its best. They are especially popular for use in small homes, small apartments, tourist cabins, motels and as auxiliary heat in hard to heat rooms."

Your Honor, I would like to offer in evidence next two letters received by Mr. Christie from Mr. Horace Dawson. One is dated April 15, 1953, addressed to Mr. James B. Christie.

The Court: Is it stipulated to be genuine in all respects what it purports to be?

Mr. Lyon: Yes, your Honor.

* * * * * [321]

The Court: Dawson, Tilton & Graham, attorneys for one of the parties here, or were they on April 15, 1953?

Mr. Lyon: Yes, your Honor.

The Court: Attorney for the defendant?

Mr. Lyon: They were.

The Court: The objection to the letter of April 15, 1953, is overruled. It will be received in evidence as Plaintiff's Exhibit 11.

(The document referred to was received in evidence and marked as Plaintiff's Exhibit No. 11.)

[See page 512.]

Mr. Hoegh: The next letter is dated June 4, 1953, addressed to James B. Christie, consisting of two sheets, signed on the second sheet by Horace Dawson, and attached to it is a drawing.

The Court: Is the document stipulated to be genuine in all respects what it purports to be?

Mr. Lyon: That is right, your Honor. Same objection.

The Court: That it was sent as a letter by the party signing it to the party addressed on or about the date it bears?

Mr. Lyon: That is right.

The Court: The objection is overruled, and it is received in evidence as Plaintiff's Exhibit 12. [322]

(The document referred to was received in evidence and marked as Plaintiff's Exhibit No. 12.)

[See page 514.] [323]

Mr. Lyon: I believe that the rest of the exhibit should be accompanied. This is only a fragment.

The Court: A fragment of the letter?

Mr. Lyon: It says, "I am also enclosing photo-static copies of advertisement of Metalbestos vent assembly," and so forth.

That is part of this letter, and it does not accompany this exhibit.

Mr. Hoegh: I would like to point out that that has been introduced in evidence, a similar copy has been introduced in evidence as Defendant's Exhibit S.

Mr. Lyon: All right, your Honor.

The Court: Is it stipulated that a copy of Defendant's Exhibit S was enclosed with the letter Exhibit 12?

Mr. Lyon: Was it?

Mr. Hoegh: Yes, it was.

Mr. Lyon: I will take counsel's word for it, your Honor, subject to correction.

The Court: Very well.

Mr. Hoegh: Pardon me, your Honor.

I would like to point out with respect to the exhibit, that the red markings on it, Mr. Lyon, were made at the deposition of Mr. Coleman.

Mr. Lyon: That is right, your Honor.

Mr. Hoegh: They do not represent a portion——

The Court: What exhibit are you referring to?

Mr. Hoegh: To the letter, I would say the enclosure to the letter, which is a drawing——

The Court: Which letter?

Mr. Hoegh: Dated June 4——

The Court: Exhibit what?

Mr. Hoegh: Exhibit 12.

The Court: The drawing attached as a part of Exhibit 12?

Mr. Hoegh: Yes, your Honor.

The Court: Your stipulation is that the red

markings thereon were made at the Coleman deposition, which is Exhibit 9?

Mr. Lyon: Yes, your Honor.

Mr. Hoegh: The red markings and the markings in ink, which are numbers with lead lines.

The Court: So stipulated?

Mr. Lyon: So stipulated.

The Court: Very well.

* * * * * [325]

JACK KICE

called as a witness by and on behalf of the defendant, having been first duly sworn, was examined and testified as follows:

The Clerk: Will you state your name, please?

The Witness: Jack Kice.

The Clerk: K-i-c-e?

The Witness: That's right.

Direct Examination

Q. (By Mr. Lyon): Will you state your age and occupation, and by whom you are employed, please?

A. I am 40 years old, I work for the Coleman Company, Inc., Wichita, Kansas. The job probably requires a little explanation, because at the time of the depositions I was working—the job title that I had was assistant to the president, which would appear in the depositions, and since that time we have greatly expanded our application engineering section, and I have taken over the reorganization of that department and the service engineering department. My present job title is manager of the application engineering and service department. In this

(Testimony of Jack Kice.)

capacity I have charge of all technical matters for the sales department. That would include training and writing manuals, consultation with the design department, liaison between design and factory and [326] numerous other sections of the business.

I could probably summarize it by saying all technical matters for the sales department come under my general jurisdiction.

Q. Where do you reside, Mr. Kice?

A. I live in Wichita, Kansas.

Q. Would you give us the background of your preparations and training for the present position you hold?

A. Probably the most impressive thing about my background is the experience.

I have been connected with the heating and air-conditioning business, almost every aspect of it, for the past 26 years, starting from the time I was helper to a furnace installer at the age of 14, during the summers while I was going to school. That is what I did all through school. And of course I graduated from high school.

After working as a journeyman sheetmetal worker for a couple of years I went to Chicago Technical College, where I completed their course in air-conditioning engineering, it must have been 1935 or '36.

Incidentally, I stayed with the school to help them in the conducting of this training course for a couple of months.

I went back to Wichita where I worked as an

(Testimony of Jack Kice.)

engineer and a draftsman. I later became the manager of the—I should say I later became district engineer for the Frigidaire [327] distributor, covering most of the State of Kansas and part of Oklahoma and Missouri. This was about 1937. Excuse me. That would be about 1938 to 1940.

I then changed jobs and had a similar position with the York distributor in about the same territory, which I was in charge of their application engineering. From there I went——

Q. Just a minute. Does the York Company distribute heating and air-conditioning appliances?

A. Yes, the York Company is one of the two largest manufacturers of air-conditioning.

Incidentally, this distributor also handled Lennox equipment and several lines of allied products in the ventilation and heating field.

I went back to Marshalltown, Iowa, which is the home office of the Lennox Furnace Company, as assistant to the chief engineer, in 1940.

I left there in 1941 to return to Wichita—this was about August of 1941—where I was in charge of a section of the tool design department, which had to do with manufacturing of the Boeing Aircraft Company.

Q. One minute, Mr. Kice. May we go back? While you were working at the York Company and these other heating and cooling system supply companies, was your job the drawing of plans and construction of various heating and cooling systems?

A. Yes, sir, I designed heating and cooling sys-

(Testimony of Jack Kice.)

tems [328] and supervised their installation and operation, adjustment.

Q. That included gas furnaces?

A. Yes, sir, that included all types of heating equipment for residences, commercial, industrial application.

Q. Now will you continue?

A. When I went with the Boeing Company, after about two years of work in connection with tooling and plant layout, I was put in a supervisory capacity in connection with the building of the Boeing strato lab, a special facility for testing aircraft equipment under conditions simulating high altitude, in which we had to operate a strato chamber, and a chill room, and other large pieces of equipment, to give temperatures in the order of 65 to 75 degrees below zero, and sometimes even colder. Absolute pressures that would be comparable to altitudes of forty and fifty thousand feet.

I started in this capacity as foreman of the strato lab and eventually became a preliminary design engineer handling work involved in the heating and pressurization of Boeing aircraft.

During the period from about 1944 until the end of the war I also worked as a consultant to the Coleman Company on the design of their new line of heating equipment which they hoped—which they later went into production on after the war. [329]

When the war was over, I went with The Coleman Company as manager of the sales engineering department, which I organized and built up.

(Testimony of Jack Kice.)

Q. Sales engineering department, do you mean you co-ordinated what the sales department wanted with what the engineering department could manufacture or did?

A. Yes, it was a matter of determining what the requirements would be for products to meet market conditions, construction requirements, to comply with FHA and other authorities, and then advise the design department as to what was required, co-ordinate with them to see that it was designed properly, co-ordinate with the factory to see that that was handled. After we got the product into production or closely allied with that, we developed the installation instructions, we trained our own personnel, the personnel of our distributors and our dealers in the proper application engineering and installation of this equipment.

At that time the service department was separate from the sales engineering department.

The present reorganization, incidentally, is quite similar to—the application engineering department in the present organization is quite similar to the sales engineering department that I organized at that time.

I should have mentioned when I was with the Boeing Company one of the jobs that I did for them was to write a [330] chapter for their drafting room manual on the subject of the fluid flow, and it was a basic technical treatise which required a great deal of research at the time, and I feel helps

(Testimony of Jack Kice.)

me considerably in my present work, this particular research.

Q. Are you familiar with blueprints and other drawings?

A. Very much so. I taught blueprint reading at the Boeing Company in the early years that I was there. I, of course, supervised the tool designers who were working on drawings that became blueprints.

At one time I was in charge of about 40 tool designers in one section of the tool design department. At the present time there are about 40 people in my department, at least half of whom are engineers, and most of them graduate engineers, and their work is of a technical nature where we do all kinds of drafting and blueprint reading.

Q. Now, Mr. Kice, do you receive any complaints or statements from your salesmen as to your products and other things that happen or that would affect the company, are those brought to you?

A. That's right, they are.

Q. Now, have any of your salesmen or distributors ever come to you with any statements concerning this particular law suit?

A. Yes, we have had a number of complaints.

Q. And what do those refer to?

A. Well, they seemed to follow a pattern of complaints that they received from dealers, in which reference was made to the representatives of the Holly Company or their dealers advising customers that the wall heaters that we are making

(Testimony of Jack Kice.)

are subject to patent infringement suit, and that they are advised that they should not buy the Coleman heater because of this.

This situation seems to be most pronounced around the San Francisco-Oakland-Sacramento area, but we have had isolated cases in other spots too.

The only definite record that we have been able to obtain on this is shown in the copy of the Construction News that I noticed you showed Mr. Christie, although we have had oral reports quite often.

Q. Do you mean the document that I am holding in my hand, is that what you were referring to?

A. That's right.

Mr. Lyon: I will ask the clerk to mark that Defendant's next in order.

The Court: It may be so marked.

Mr. Christie: For identification, Mr. Lyon?

Mr. Lyon: I just want to ask that it be marked.

Mr. Christie: We object to its admission in evidence as going beyond the scope of pleading. [332]

Mr. Lyon: It hasn't been offered in evidence.

Mr. Christie: We further object to this line of testimony, because it seems to be beyond the scope of pleading and hasn't anything to do with the issues in this case.

The Clerk: Defendant's W, for identification.

(The exhibit referred to was marked Defendant's Exhibit W, for identification.)

The Court: What is the purpose of this?

Mr. Lyon: The purpose of this is to show that

(Testimony of Jack Kice.)

this case is brought before this court with unclean hands, and I do not believe that it is required to plead that fact. The actions of the plaintiff in this court, they have advertised, as the article that I have now submitted to your Honor shows, that they have three judgments against The Coleman Company on this patent.

The Court: Does this relate to matters subsequent to the filing of this complaint?

Mr. Lyon: Yes, sir.

The Court: Very well. The objection is overruled.

Q. (By Mr. Lyon): I will now hand the witness Exhibit W and ask him if he will indicate the material that he was referring to.

The Court: What is Defendant's Exhibit W, first?

Mr. Lyon: That is the document that he just referred to as being—well, will you identify what Exhibit W is, then, [333] again?

The Court: Is it a house organ?

Mr. Lyon: No. It is a newspaper.

The Witness: This is a construction newspaper published by the F. W. Dodge Corporation.

The Court: Who is the F. W. Dodge Corporation?

The Witness: The F. W. Dodge Corporation is the outstanding authority and publisher in the construction field. They publish Sweet's catalogues.

The Court: All construction?

The Witness: Yes.

(Testimony of Jack Kice.)

The Court: And this is a newspaper that they publish to the trade?

The Witness: That's right.

The Court: To the construction and building trade?

The Witness: That's right, your Honor.

The Court: And circulated where?

The Witness: This is the Denver edition, which is circulated all over the western part of the United States.

The name of the paper is the Daily Journal.

The Court: Defendant's Exhibit W, for identification, is what issue of that?

The Witness: This is the Saturday, February 13th issue. I believe it is a weekly paper.

The Court: Of what year? [334]

The Witness: Excuse me. 1954.

Did you want me to read this?

Mr. Lyon: Yes. It is a short article.

The Witness: The story which appears on page 1 in the center of the page is headed: "Holly Manufacturing Test Patents In Suit."

"Tom Gressett of the Thomas G. Gressett Company, manufacturer's representative for the Holly Manufacturing Company, has announced that the years long controversy over Holly's basic patents on its secondary heat exchanger and the claimed infringement by Coleman Manufacturing Company are currently being heard by the California Supreme Court.

"A judgment is expected in June. According to

(Testimony of Jack Kice.)

Gressett, Holly has won four previous suits contesting Coleman's heat economizer ideas, claiming they were developed from Holly's principals.

"The Holly Narrowwall gas heater utilizes the secondary heat exchanger, which was developed about eight years ago. Air warmed by the secondary heat exchanger is discharged from the upper grille and additional air is drawn from the floor level and circulated around the sides and up the back of the heater. This additional circulation of warm [335] air assures better warm air distribution and helps to maintain cool walls and warm floors.

"A favorable decision for Holly in the current case would probably mean that Coleman would be ordered to cease and desist manufacture of its product, Gressett said."

This is probably the source of the allegations that have been made by various Holly dealers and representatives in sales situations, in which Holly was competing against Coleman for business, some of which were large tract operations.

Our salesman from San Francisco called me about one of those situations about six or eight weeks ago, in which he claims that he lost a tract job involving several hundred units because of the concern of the customer over this allegation.

Mr. Christie: Your Honor, may we have this last answer stricken as hearsay?

The Court: It isn't offered to prove the truth of what was said, I take it; it is offered to prove what was said, isn't it?

(Testimony of Jack Kice.)

Mr. Lyon: That is right, your Honor.

The Court: For that limited purpose the evidence is received. The motion is denied.

Q. (By Mr. Lyon): Now, Mr. Kice, are there to your [336] knowledge any judgments or decisions that the Holly Company has again the Coleman Company with respect to these heaters in any way whatsoever?

A. None to my knowledge. This, I believe, is the first trial. [337]

Mr. Christie: We will stipulate, Mr. Lyon, that this is the only lawsuit between plaintiff and the defendant.

The Court: The first and only?

Mr. Christie: I believe that is correct, your Honor.

Mr. Lyon: I will accept the stipulation.

Q. (By Mr. Lyon): Now, Mr. Kice, was a retraction to this article made at any time by the defendant?

The Court: By the plaintiff?

Q. (By Mr. Lyon): By the plaintiff?

A. There was a retraction published in the same paper several weeks later.

Q. And whereabouts in that Journal did that retraction appear?

A. It was in a small paragraph sort of buried in the paper.

Q. Have you got a copy of that retraction?

A. I can find it there in my material.

Mr. Lyon: Might the witness be excused to get it?

(Testimony of Jack Kice.)

The Court: Yes.

Mr. Lyon: If your Honor please, I just learned of this retraction myself this afternoon, and that is why I have not had a chance to get it marked.

For the purpose of the record, the witness has just handed me a document, and I will have him identify it as soon as Mr. Christie see it. [338]

While they are examining that, I will offer Exhibit W in evidence.

The Court: The same objection?

Mr. Christie: Same objection, your Honor.

The Court: Overruled. It may be received in evidence.

(The document referred to was received in evidence and marked as Defendant's Exhibit W.)

[See Book of Exhibits.]

Mr. Lyon: Now, I ask that this document——

The Court: Is that another issue of the same newspaper? The same as Exhibit W?

Mr. Lyon: Yes.

The Court: Of what date?

Mr. Lyon: The title of it is Daily Journal, Denver, Wednesday, March 3, 1954. And I am offering it. Page 2 is the part that I am interested in. And I will ask that that be marked as Defendant's next in order.

The Court: It would be Defendant's Exhibit X for identification, Mr. Clerk?

The Clerk: Yes, your Honor.

(Testimony of Jack Kice.)

(The document referred to was marked as Defendant's Exhibit X for identification.)

The Court: Is it stipulated to be a genuine copy in all respects of what it purports to be?

Mr. Christie: Yes, subject to the same objection we made before, your Honor. [339]

The Court: Very well. Do you offer it in evidence?

Mr. Lyon: I will offer it in evidence.

Is this the document you referred to as the retraction?

The Witness: Yes, that is the document.

The Court: The objection is overruled. It may be received in evidence as Defendant's Exhibit X.

(The document referred to was received in evidence and marked as Defendant's Exhibit X.)

[See Book of Exhibits.]

Mr. Lyon: Now, your Honor, I would like to offer a book of patents to the prior art in evidence that I have had the clerk mark, and these are in the book in the same order as I provided the court originally.

The Court: Exhibits C to P, inclusive?

Mr. Lyon: C to P, inclusive.

The Court: Is there objection to the offer?

Mr. Christie: No objection, your Honor.

The Court: It may be received in evidence.

(The exhibits referred to were received in evidence and marked Defendant's Exhibits C to P.)

[See Book of Exhibits.]

(Testimony of Jack Kice.)

Mr. Lyon: I believe, for the purpose of the record, though, I had better give the numbers of the patents along with the exhibit number they have.

The Court: Very well.

Mr. Lyon: I had better do that for the transcript.

The Court: There is a list in the copy I have.

Mr. Lyon: I wonder if the court reporter could just copy the list. It is in here. There is an index of them in the book, the first page.

The Court: Is there any objection to the reporter copying that index into the record at this juncture?

Mr. Christie: No objection, your Honor.

The Court: It being an index of the contents of the prior art patent book containing Defendant's Exhibits C to P, both inclusive.

(The index referred to is in words and figures as follows:

Exhibit C—United States Patent No. 1,361,389, issued to McLeod December 7, 1920.

Exhibit D—United States Patent No. 1,698,775, issued to Traut January 15, 1929.

Exhibit E—United States Patent No. 2,453,954, issued to Wright November 16, 1948.

Exhibit F—United States Patent No. 2,484,457, issued to Marble October 11, 1949.

Exhibit G—United States Patent No. 2,487,775, issued to Cartter November 8, 1949.

Exhibit H—United States Patent No. 139,111, issued to Briggs May 20, 1873.

(Testimony of Jack Kice.)

Exhibit I—United States Patent No. 268,860 issued to Browell December 12, 1882.

Exhibit J—United States Patent No. 2,209,324, issued to Davison July 30, 1940.

Exhibit K—United States Patent No. 2,491,664, issued to James December 20, 1949. [341]

Exhibit L—United States Patent No. 303,174, issued to Mason August 5, 1884.

Exhibit M—United States Patent No. 2,093,492, issued to Snyder September 21, 1937.

Exhibit N—United States Patent No. 311,313, issued to Hamilton January 27, 1885.

Exhibit O—United States Patent No. 2,102,727, issued to Maher December 21, 1937.

Exhibit P—British Patent No. 140,989, issued to McLeod April 8, 1920.

Mr. Lyon: And for the court's information, these are the same as are identified as Exhibits C to P in the pretrial statement, too, and given the same number and order.

The Court: Yes.

Q. (By Mr. Lyon): Now, Mr. Kice, are you familiar with the defendant's structures Nos. 64, 67, 68 and 69? A. Yes, sir.

Q. What is the difference between these structures? * * * * * [342]

Q. Mr. Kice, you heard the deposition, a portion of it that was read, of Mr. Coleman concerning a New Products Committee that was read into the record yesterday, did you not? A. Yes, I did.

(Testimony of Jack Kice.)

Q. Now, could you give us some of the members of that committee? I don't need them all, but——

A. Mr. Sheldon Coleman, Mr. W. C. Coleman, Mr. Clarence Coleman; the sales manager, Mr. Carl Burroughs; the purchasing director, Mr. John Schul; Mr. Dean Olds, the chief engineer at that time.

Q. Were you a member of that committee?

A. I was a member of the committee, yes, sir.

Q. In 1952?

A. Yes, sir. I have been a member for five years.

Q. Now, what actions did the New Products Committee of the Coleman Company take in relation to the development of the economizer that is in the case before this court?

A. Well, the New Products Committee doesn't design the product. They merely establish overall requirements and general specifications, that would include such things as, we need a line of wall heaters that would meet the market requirements. Generally, the market studies are made by others outside of the New Products Committee, and are passed and approved on, or if not approved, sent back for further study. As to design details, that is left up to the design people. [347]

Q. Now, have you searched the records of the New Products Committee of the Coleman Company?

A. Yes, I have.

Q. For the minutes of the meetings of this committee?

(Testimony of Jack Kice.)

A. Yes, we searched the records. As a matter of fact, at Holly's request.

Mr. Lyon: I will ask the clerk to mark the document entitled, Minutes of New Products Committee Meeting, August 14, 1952, as Defendant's next in order.

The Court: It may be so marked. It would be Y, would it not, Mr. Clerk?

The Clerk: Yes, your Honor.

(The exhibit referred to was marked Defendant's Exhibit Y, for identification.)

Q. (By Mr. Lyon): I will hand you Exhibit Y and ask you if you can identify that, Mr. Kice?

A. This is a ditto copy of New Products Committee record. The minutes for August 14, 1952.

Q. Now, does that refer to the steps in the development of the present Holly 67 heater?

A. Do you mean Holly?

Q. Pardon me. The Coleman 67.

A. Yes, this refers to the difficulties that were being encountered with the approval of the Model 67, 68, 69 and 64 Coleman heaters, and refers to a new design approach that we [348] had more hopes for getting approval.

Q. Were you present at that meeting, Mr. Kice?

A. No, I wasn't present at that meeting. However, I am fully informed of what went on at the meetings. It happened to be at a time when I was out of town. But I had been at other meetings before and after that one and am completely familiar with the situation.

(Testimony of Jack Kice.)

Mr. Lyon: I will offer this as Defendant's Exhibit Y in evidence. * * * * *

The Court: Very well, the objection is overruled. Exhibit Y for identification is received in evidence.

(The document referred to, marked Defendant's Exhibit Y, for identification, was received in evidence.)

[See page 734.]

Q. (By Mr. Lyon): Now, Mr. Kice, will you explain the operation of the Coleman 67 heater with the four-foot economizer, [349] please? If you have any charts that would enable you to show this, will you produce those?

If you want one of these, you just tell me and I will bring it up to you.

A. I felt that the entire subject needed a little background for understanding of the design thinking that went into the development of the Coleman economizer, and probably throw some light on the basic differences between our design approach and the Holly design approach. As a matter of fact, it is a little difficult to make a comparison between the two devices, because there are so many fundamental differences in their operation.

Actually the similarity is only a surface thing. They both have wall heaters that are designed to go in a single stud space. But that is a thing that is common to practically everybody in the wall heater industry. And single stud spaced wall heaters will go back to before the war, covered by consid-

(Testimony of Jack Kice.)

erable trade literature, and all, that I could produce.

The fact that there is a flue stack in both of them is common with the entire industry; the fact that they both have gas burners is common to the entire industry; the fact that they both use ventilated flue stacks is common to the entire industry. Probably the only similarity that they have in common not shared by the rest of the industry is in the fact [350] that we both make our own ventilated flue stacks and have approval by A.G.A. as a unit to be sold with the heater itself. And on the surface, **that** is merely looking at them from the front, they appear to be similar because they both have grilles in the wall directly above the heater itself. But even the grilles are basically different in their function, and I would say that the Holly unit's design pedigree goes back to a fireplace ventilated flue that was allowed by the Patent Office in 1922, I believe it is—I will check that later—and the Coleman design pedigree goes back to a fireplace flue back in 1882. And by tracing the history from those two design pedigrees I believe it would be very obvious the differences that are involved in the design philosophy of the two units. [351]

Q. Mr. Kice, first before we go into that, could you give us a showing of the difference, or just exactly how the Coleman heater actually operates?

A. I would be glad to do it. I believe it would show up in the presentation I plan to make of these charts to show the Coleman furnace.

The Court: Do you wish an easel of some kind?

(Testimony of Jack Kice.)

Mr. Lyon: We will put these on this easel over here.

The Witness: Is that where you would rather do it?

The Court: Would you like to bring that out around near the lectern? Then everyone can see.

Mr. Lyon: All right.

Mr. Lyon: Now, we have a chart on the easel which states at the bottom, "Coleman No. 67 Single Wall Heater, Smooth Wall," and I ask that the clerk mark that as Defendant's exhibit next in order.

The Court: Exhibit Z for identification, Mr. Clerk?

The Clerk: Yes, sir.

(The exhibit referred to was marked Defendant's Exhibit Z for identification.)

Q. (By Mr. Lyon): Now, will you describe what is illustrated on Exhibit Z, please?

A. The chart here is drawn to scale and shows a Model 67 wall heater as manufactured by Coleman at the present time. It is identical to the units that are on display. [352]

Q. That is, Exhibit 24?

A. Exhibit 24, that is right.

We show here a wall heater that is comparable to most any wall heater that is made by other manufacturers in the fact that it has a gas burner and a radiator, with a draft diverter.

Q. Is the radiator in red?

A. The radiator is in red, and extends up—the

(Testimony of Jack Kice.)

top portion here is the draft diverter, which is a part of the heater itself. And it is enclosed in a metal cabinet. The cabinet as designed would be put in a recess cut into the wall between two studs. The studs are commonly 16 inches apart on center, so that the width between them is approximately $14\frac{1}{4}$ inches, or so; and in common with everyone in the industry, we all make it easy for the installer by making the wall heater slightly under that dimension in width.

Mr. Lyon: One question: When you say common to the industry here—you have used that term—how long ago was this common? I mean, is that something recent or something old?

The Witness: I would like to show my historical development to bring that out better. I have some charts that I believe will show that better than this. But the wall heater designed to fit in a single stud space first appeared on the market some time shortly after the war in our part of the [353] country. Now, they may have been available out here in very limited quantities—certainly hadn't made a mark on the industry—as early as 1941, 1942. But we didn't see that type of wall heater in common use nationally until somewhere around 1946.

It might bear mentioning that we became quite interested in the wall heater as a new product for the Coleman Company in early 1947 and had our—had discussions in our New Products Committee that led to the concept of a circulating type of wall

(Testimony of Jack Kice.)

heater that would fit in a single stud space pretty well defined by the end of 1947, after making market studies of all of the types of mild climate heating devices that might be—fit in the same market that our floor furnaces were sold in.

The Coleman Company has been a leading producer of floor furnaces since 1936 or '37, and mild climate heating is a specialty of ours. Now, that is the reason why we made the study of the wall heaters that led to this general type of design. And I would say that, very largely, the fact that this type of design has become popular is because the Coleman Company adopted it and promoted it; that is, the unit that would conveniently sit, locate in a single stud space and was so easy to install.

I have pointed out that the unit goes into a recess in the wall. And the casing around it is a ventilated casing, to [354] keep the structure cool, to prevent excessive temperatures in the wall. The outer shell, the part that you see, is decorative so that it makes a nice, neat appearance. And the circulating type wall heaters have the casing closed except for a grille at the top and bottom, for circulation. Those two grilles, again, are common with the rest of the industry. There are some exceptions. One particular company makes it wide open and merely radiates the heat. But we have been an advocate of good circulation as important as a comfort, and so we work very hard to get the maximum amount of circulation in our units.

Now, this part up here is the part that is not

(Testimony of Jack Kice.)

common to the rest of the industry. In fact, the Coleman Company is the only manufacturer who provides this inlet grille at the mid-point. I would call that an intermediate height inlet grille; which is in there to ventilate the ventilated flue passage.

The Court: Is that marked in any way on Defendant's Exhibit Z for identification?

The Witness: I refer to that as the "second stage inlet grille, independent air source, 'built in' top of cabinet extension," on which we have applied for patent. [355]

Mr. Lyon: Mr. Kice, would you point that out on Exhibit 24-A, that particular grille, to the court?

The Witness: As you can see, it is a substantial size grille in the top ledge of the cabinet shell.

Another pair of grilles that I would like to call your attention to at this time, which is not common to the rest of the industry, nor to Holly—incidentally, this is not provided in the Holly unit either, the grille that I just described is not provided in the Holly unit, nor are these grilles here provided in the Holly unit (indicating). These are outlet grilles that ventilate the lower section of the unit and the stud space surrounding it.

Mr. Lyon: Those are marked grilles 9 and 10 of Exhibit 24-A, that you just referred to?

The Witness: That's right, sir.

The Court: Isn't the grille in front an outlet grille?

The Witness: We might just go through all of the grilles here.

(Testimony of Jack Kice.)

Mr. Lyon: What is the main grille there, the great big one with the tag hanging on it, for, Mr. Kice?

The Witness: The large grille at the top of the cabinet is provided for the outlet of the heated circulating air. It also provides a relief for the draft hood. In other words, the relief opening of the draft hood opens out through a portion of the outlet grille. [356]

This large grille at the bottom here is the return recirculating grille, and it is supplemented by another opening——

The Court: The grille at the bottom is sort of the intake grille, isn't it?

The Witness: That is right. It is the intake for the recirculating air.

There is also an opening in the bottom, which supplements the intake grille.

The Court: That isn't covered with louvres?

The Witness: That's right, simply because it doesn't need it from an appearance standpoint, and we are able to get more effective opening by not having the louvres.

In addition to the recirculating air for the heater we also have air for combustion through this opening.

The Court: That is the opening——

The Witness: The air that is required—I see. The opening in the base of the cabinet shell. And that is combustion air required by the burner.

Air also comes through the bottom opening to

(Testimony of Jack Kice.)

provide ventilation to keep the cabinet cool and to keep the stud space cool surrounding it. And it enters through these lower openings that I have just described and comes out through the side openings that we have provided in the top side of the shell. [357]

The Court: The air which is emitted at points 9 and 10, those side grilles at the top on either side of Exhibit 24-A, are they separated somehow from the air that is emitted through the main front grille there at the top?

The Witness: Those openings are completely separated by these plates that are built into the unit. And the top of the heater fills in the rest of the space here. The closure is as snug as convenient. We don't hermetically seal that space, but it is made comparatively tight.

The Court: Then the outlets 9 and 10 let air out from the sides of the lower box?

The Witness: That is exactly right, sir, that is the way that we keep the temperatures from building up in the lower section of the casing.

The Court: The main grille in front lets air out from the front of the lower box?

The Witness: That's right, right up through there.

The Court: How does the air get out from behind the box?

The Witness: The air from behind the box or the space in back of the box communicates with the column spaces in the side of the cabinet from top

(Testimony of Jack Kice.)

to bottom. So that any air that could be in that space is free to come up through the relatively large spaces running from top to bottom, and this is the most convenient point for it to come out (indicating). [358]

The Court: Grilles 9 and 10 of Exhibit 24-A?

The Witness: That's right.

The Court: Is there any means devised for that air to go upward into the economizer?

The Witness: The only air that would get up there is leakage air, which I believe will show up better in my charts as I go ahead with it.

Q. (By Mr. Lyon): Mr. Kice, doesn't a great deal of that air that comes up the back—isn't that also vented out through the attic?

A. There is a channel shown here in this drawing——

The Court: Exhibit Z.

A. (Continuing): ——which points out that air is intended to go up the back of the unit completely up the area shown in back of the ventilated flue passage.

Q. (By Mr. Lyon): That is outside of the shell of your economizer?

A. Outside of the economizer, yes, sir.

The Court: Do you mean outside of the outer shell?

The Witness: Yes, sir, outside of the outer shell of the economizer.

We are not dependent on that, because we anticipate that in some cases—if you would strike that,

(Testimony of Jack Kice.)

please—in many cases the wall will be plastered, and plaster keys can restrict and even stop up the passage of air in back of the [359] heater. So we felt that it was important in the design of this unit that our unit—that our economizer could be properly vented, whether there was any air flow from below or not. In other words, completely independent of the flow of air up the stud space. It has its own built-in economizer.

I would like to get back to tracing this thing from its origin.

Mr. Lyon: If the witness can tell his story better that way, I would agree to have him tell it that way.

Go ahead, Mr. Kice.

The Witness: I have, I believe, a line of thinking here that would clarify some of the confusion that is evident, and I believe we would be able to see the forest instead of having so many trees in our way.

I would like to bring out the fact that the Holly unit uses what has been called in the trade for many years—in fact, more years than any of us here are old—a ventilated flue stack. They call it a secondary heat exchanger. And I believe they are utilizing it primarily for its heat exchange purpose. We use a ventilated flue stack purely as a ventilated flue stack.

Our design problem is to keep the stack cool so that it does not overheat the wall.

(Testimony of Jack Kice.)

As such it goes way back in the patent art to the 1880s, and even earlier. [360]

Mr. Lyon: Now you are putting up a chart, which I will ask the clerk to mark as Exhibit AA.

The Court: It will be so marked.

(The chart referred to was marked Defendant's Exhibit AA, for identification.)

Mr. Christie: Your Honor, we have never seen these charts and we know nothing about them.

Mr. Lyon: They were shown to you this morning.

The Court: Can't you look at them, Mr. Christie, as they are put up?

Mr. Lyon: These are purely illustrative of the witness' testimony, your Honor.

The Court: Let's mark them as rapidly as possible.

Mr. Lyon: We will use them in this order, so start on AA.

The Court: Have you seen Exhibit AA, Mr. Christie?

Mr. Christie: I haven't, but I understand that Mr. Hoegh has seen them this morning for the first time.

The Court: Very well.

The Witness: I made these up over the week-end because it became apparent in the testimony last week that some enlightenment would help everybody to get an understanding, and perhaps for us to be talking the same language, too.

I think that a lot of the misunderstanding be-

(Testimony of Jack Kice.)

tween Holly and Coleman may be simply due to not understanding the same [361] meanings by the words that are being used.

The first wall heater was obviously a fireplace, and we normally think of a fireplace as being a wood-burning type in which you see the flame, but it is not necessarily so, because many, many fireplaces have enclosures like this (indicating), and many——

The Court: By “this” you mean as shown on Exhibit AA for identification?

Mr. Lyon: Yes.

The Witness: The little doors that I folded over, is what I refer to.

As a wall heater it is obvious that it is located in the wall and reaches from floor to ceiling. It has a so-called first box, which is the major portion of the fireplace; and it has a second box, if we want to consider the flue the second box, as has been done in the patent in suit.

The comparison there is probably more clear when I show the side view. [362]

The Court: Are you now referring to Exhibit——

Mr. Lyon: BB. What is the next one?

The Clerk: AB.

Mr. Lyon: Exhibit AB.

The Witness: This exhibit AB shows a side view of the typical fireplace which I referred to as the first, the original wall heater. What we call the first box would contain the first radiator, in terms of the patent in suit, because there is radiation which takes

(Testimony of Jack Kice.)

place from the flame front, or from the closed doors. Let's call this the first radiator. (Indicating.)

The second radiator is the radiation that would take place from the upper portion of the flue; and a lot of the heating from the fireplace is the result of that radiation.

Our burner could be wood, log or coal, or a gas burner. There are millions of fireplaces that operate with gas burners.

I call your attention to the fact that a typical fireplace has a large cross-section in the first radiator. It has a substantially smaller cross-section in the upper radiator. And it has a draft hood with a deflector or baffle built into it, in any good fireplace. This is more commonly called a smoke shelf when you build a fireplace, but it is a deflector, and would deflect any down draft out through the hood.

Now, we have only been talking about fireplaces which are commonly thought of as made out of brick or stone. But [363] back in 1882 Mr. Brownell—the patent, we don't have the number.

Mr. Lyon: Exhibit I.

The Witness: Exhibit I. —showed a ventilated flue stack, as I have illustrated here in green on the overlay, which was made out of metal; has an inlet opening at the intermediate height above the first box. And the air that is used to ventilate the flue and keep it cool is then discharged into the room and utilized for the sake of economy. That is the first economizer as it is used in the Coleman design.

(Testimony of Jack Kice.)

Q. (By Mr. Lyon): Mr. Kice, you have depicted substantially the device as described in the Browell patent, Exhibit I, in this overlay to Exhibit AA?

A. That is right. This illustrates very close—I don't believe there are any significant differences between what I have shown here on my overlay and the illustrations in the Browell patent. In fact, there is a sketch there that I copied this from; that is, a part of the drawing is what I copied this from.

You will note that air enters the economizer——

Q. Would you mark that with a red pencil, A?

A. I have one—air enters the economizer at points A, in openings directly above the lower box, and would absorb heat from the flue and would exhaust back into the room [364] through an outlet, which I will mark B.

In the Browell patent it shows the optional alternative of going on up into second floor rooms. But what we have shown here is the practical application of the Browell patent.

Now, if I may refer back to Exhibit AB, the overlay,——

The Court: AB?

The Witness: Yes, sir.

The Court: Your last exhibit you were dealing with was——

Mr. Lyon: AA.

The Court: The Browell patent.

The Witness: The Browell patent was the overlay on Exhibit AA.

(Testimony of Jack Kice.)

The Court: And it is marked——

Mr. Lyon: The first one was AA that he was just discussing. Now he is discussing AB.

The Court: You mean the drawing which illustrates the Browell patent is made a part of AA?

Mr. Lyon: It was the overlay added to AA, if your Honor please.

Mr. Christie: Your Honor, it looks to me as though it is Mr. Kice's interpretation of the portion of the Browell patent; it isn't the Browell patent.

The Court: Of course, it is his interpretation.

Mr. Lyon: Your Honor, see, this is Exhibit AA originally (indicating). I mean, it was marked with all of this on. [365] Now, when he says that he adds the Browell patent, Exhibit AA, he does it by means of this overlay on top of it.

The Court: Another drawing which is attached to and is a part of Exhibit AA for identification?

Mr. Lyon: That is right, your Honor. Now, he is doing the same thing on AB, which is the side view of AA.

The Witness: You will recall that AB is a side sectional view of a typical fireplace. And we find in the art that Mr. McLeod has a patent which was allowed in 1919.

The Court: Exhibit——

Mr. Lyon: Is that Exhibit C, Mr. Kice, that you are referring to?

The Witness: That is Exhibit C, which is a metal ventilated flue stack and fireplace enclosure,

(Testimony of Jack Kice.)

that is very similar to the Holly design philosophy.

In fact, I see in this every element that is claimed by Holly. Remember that we had the lower box and the upper box, with a first radiator and a second radiator and a draft hood, with what we call a deflector.

Now, the ventilation passages that was the invention of Mr McLeod provides ventilation from grilles at the floor level that permits a flow of air around the sides and the back of the lower radiator, or lower box, excuse me, and permits it to flow up into the second box and through it, picking up the heat from the flue, keeping it cool thereby, and [366] the heat that it picks up is discharged through a grille near the ceiling into the room.

Q. (By Mr. Lyon): Now, is that around the bottom—in this last device is there a shield between the chamber where the fire is and that—

A. Yes, there is a metal shield right up the—surrounding the entire first radiator.

The Court: Now, does the air from the back of the fireplace there get over to be ejected out the front grille above?

The Witness: The space that I have shown here in blue is actually an annulus surrounding the flue passage which is made out of metal and would join on a flue going on up to exhaust the fumes outside. So it seems to me that in these comparatively early inventions we can see the elementary differences between the Coleman design, which is quite similar to the old Browell patent in 1882, and the Holly

(Testimony of Jack Kice.)

unit, which is quite similar to the McLeod patent that dates back to 1919.

The fact that they are fundamentally different is pretty well proven by the fact that the Patent Office allowed separate patents on the two basic ideas. They are both ventilated flue stacks, but they operate in a different manner.

Now, I'd like to carry from that then into the more recent developments of heating devices which have taken the name of wall heaters in the trade.

Mr. Lyon: Just a minute. I will offer these two as [367] illustrative of the witness' testimony, as Exhibits AA and AB in evidence.

Mr. Christie: No objection, if so limited, your Honor.

The Court: They may be received in evidence.

(The exhibits referred to were received in evidence and marked as Defendant's Exhibits AA and AB.)

The Court: Are you offering Z?

Mr. Lyon: Yes, I will offer Z in evidence, too, as Defendant's Exhibit Z on the same basis, illustrative of the witness' testimony.

The Court: Is there any objection?

Mr. Christie: No objection, on that basis, your Honor.

The Court: Exhibit Z for identification is received in evidence.

(The exhibit referred to was received in evidence and marked as Defendant's Exhibit Z.)

The Witness: Now, this sketch is intended to—

(Testimony of Jack Kice.)

Q. (By Mr. Lyon): What is this marked, Mr. Kice?

A. This is Exhibit AC. And it is intended to just illustrate, for purposes of our discussion here, a typical early heating device which we first called a wall heater.

I believe that those were in use, to a limited degree, in California, as early as 1935; perhaps earlier. I first saw a unit of this type in Wichita in 1941, which had been installed in 1939. [368]

Essentially, it was a fireplace made out of metal; somewhat the same arrangement as the units that we have been looking at. Perhaps it might also be described as a stove designed to set into a wall recess. It consisted of a lower combustion chamber or radiator in which a gas burner was designed, with a draft hood; all of which would be combined in a lower box and covered by a decorative shell or enclosure, which would have an inlet grille and an outlet grille through which the air to be heated would go in and come back into the room. The draft hood, of course, was provided because all gas fire heating equipment must have a draft hood. The vent went up through the wall, through the stud space in the wall and discharged out of the house.

The Court: By "the vent" you refer to the flue?

The Witness: The flue. Thank you.

Now, the studs—I have indicated here by dotted lines the studs, and I believe it will show the main problem here with this type of wall heater. You see

(Testimony of Jack Kice.)

here is a stud, here is a stud, a stud and a stud—and I will label them. [369]

The Court: With the heater extended over more than one stud space, is that it?

The Witness: That's right. It made a difficult installation and required cutting of the studs to install it, and then extra framing by the carpenter, which was rather expensive.

Now, to overcome that——

Mr. Lyon: I will offer Exhibit AC as illustrative of the witness' testimony.

Mr. Christie: No objection.

The Court: Received in evidence.

The Witness: To overcome that installation problem a unit was designed to fit in the single stud space, a vertical design, rather than a horizontal design as I have just shown.

Q. (By Mr. Lyon): You are now referring to Exhibit AD?

A. This is Exhibit AD.

It has the advantage of fitting into the single stud space and is very easy to install. It illustrates the typical wall heater in many respects. It has a draft hood and a relief opening, and the main difference between this and the heaters that we are showing here is in the fact that these early ones were designed with an open front and heated the room primarily by radiation, rather than convection air currents that would circulate throughout the room. So I will label that as an open-front unit radiant. [370]

Q. Could you give us the names of some of the

(Testimony of Jack Kice.)

heaters that were built of that type that you know of?

A. By far the outstanding type unit, make of unit of this type, is the Day-and-Night Panelray unit.

The Court: Is that electric or gas?

The Witness: It was gas, sir, and has a burner in the base with these—this is the combustion chamber or radiator, in the language of the patents in suit. Its disadvantage, of course, was poor circulation. So we have here in the art up to this time, which would be 1945, the horizontal type of unit that had fair circulation, but was difficult to install, as shown in Exhibit AC. The other type of wall heater was easier to install, but had poor circulation.

The Court: By poor circulation you mean the hot air did not circulate into the room?

The Witness: That is what I mean, sir.

This brings us, then, up to the period after the war.

Mr. Lyon: I will offer Exhibit AD as illustrative of the witness' testimony, in evidence.

Mr. Christie: No objection.

The Court: Received in evidence.

(The exhibit referred to was marked Defendant's Exhibit AD, and was received in evidence.)

Q. (By Mr. Lyon): Now, what exhibit do you have before us? [371]

A. This is Exhibit AE. This brings up the pe-

(Testimony of Jack Kice.)

riod after the war, and the Coleman Company became interested in the market for equipment that might be competitive to floor furnaces, recognizing that there are some disadvantages in installing floor furnaces, and the service problem under the floor, and that sort of thing, which were greatly reduced in the wall heater type of heating device. And we studied the types of equipment that were on the market. The two that I have shown you are only two of a large number of devices that were considered.

We decided at that time that a unit which would combine the advantages of the two types I have just shown would have the best possibility for success in the market. So we developed our thinking along that line, and late in 1947 I was responsible for specifications of a wall heater that would set in a stud space, a single stud space, and would have good circulating characteristics, would be enclosed to prevent anyone from getting burned on the hot radiator.

I thought at the time that it was a brand new idea. I found out later that there have been units of this general type that were in production in a very small way, even before I had the idea myself. But it was not a particularly new thing, and there were no patents on the idea of a single stud space, and enclosed, as this is.

It was so popular that most everybody began making wall heaters with this general configuration.

(Testimony of Jack Kice.)

Let me point out the most important factors in this design, as related to the patent discussion. We have the burner in a combustion chamber or radiator, and a draft hood with a relief opening, closed in front, with circulating grilles through which air could be heated, passes over hot radiators and is discharged out into the room. The unit goes in a wall between the ceiling and the floor.

It was easy to fit in one stud space, and does not require cutting the studs. It is easy to install, and it has good circulation.

This is the type of unit that we first conceived in 1947 and produced in 1949. It went under the Coleman model numbers 60, 61, and 62. The model that I have shown here would be similar to the model 60. The model 61 is a unit that was also similar, but had a rear outlet. And the model 62 is what was referred to in the trade as a dual-wall wall heater, in which the inlet and outlet grilles open into two adjacent rooms, and you might think of it as two wall heaters back to back inside the wall space. There is no stud space to the rear of such a unit, obviously.

Q. (By Mr. Lyon): Mr. Kice, what was the relation in that heater—did it have a flue in that heater?

A. By all means. Thank you. The flue was provided and would go from the top of the draft hood up through the [373] stud space, and would exhaust the products of combustion outside.

(Testimony of Jack Kice.)

The Court: On that drawing, as I see it from here, the heater is wider than the stud space.

The Witness: The part that goes in the stud space is just slightly narrower than the stud space. The shell is outside.

The Court: I have it now. It is the shell that appears wider.

The Witness: O. K. Fine.

Q. (By Mr. Lyon): Mr. Kice, what was the relation between the flue and the radiator in this device?

A. I believe it shows in this cross-sectional view in this next exhibit, quite well.

The Court: Which is Exhibit AF for identification, is it?

The Witness: The next exhibit is AF.

This is a sketch of the same Model 60 Coleman wall heater, and you can see that the radiator, the lower radiator is installed in the recess of the wall. The upper radiator runs between the stud spaces. The cross-sectional area of the lower radiator is substantially larger than the upper radiator.

Perhaps that is shown better on the sketch AE.

Incidentally, we found no significant difference, no [374] significant importance to the size of the upper radiator——

The Court: The upper radiator is really just a flue?

The Witness: That's right. The flue size is in compliance with the requirements of the American Gas Association.

(Testimony of Jack Kice.)

We used at this time a flue size that would fit the four-inch oval Metalbestos or four-inch Transite, which was common use at the time. We still use the same size flue passage in our wall heaters, whether we provide it with the economizer or—our smaller units do not use the economizer, as you will see a little later.

The Court: The flue is a different shape, though?

The Witness: The flue passage is exactly the same shape and the same size in the economizer models and in the models without the economizers.

I might point out, too, that the size of this flue is principally established in the interest of standardization. We use the same flue size and shape for all models from 25,000 B.T.U.'s up to 55,000 B.T.U. sizes.

And incidentally, the Holly Company does too.

And all this reference in the patent to critical velocities and laminar flow, and all that, is so much poppycock, in my opinion, designed merely to influence the patent examiner.

Q. (By Mr. Lyon): Mr. Kice, I will hand you Exhibit AI and ask you if that describes the Coleman Model 60 that you [375] have been referring to in Exhibits AE and AF.

A. That's right, Exhibit AI is one of our specification sheets that gave the information to the trade on all dimensions, capacities, and so forth, for the Model 60.

Q. Those were published as early as 1949?

A. Yes, sir.

(Testimony of Jack Kice.)

Mr. Lyon: I will offer that in evidence as Exhibit AI.

The Witness: This is one that was published in 1949.

Mr. Christie: No objection as long as it is limited as illustrative only of the witness' testimony.

Mr. Lyon: I will not limit the offer here, because it is proof of the publication and use of that in 1949.

Mr. Christie: Then we object, your Honor, to the introduction on the ground that it is not proof of 1949. The only word that we have on it, I believe, is Mr. Lyon's testimony to the effect that it was introduced in 1949.

Mr. Lyon: I believe if the record is read, the answer was made by the witness that it was published in 1949.

The Court: When was Exhibit AI published, Mr. Kice?

The Witness: S-572 form number is a 1949 date.

The Court: Your answer is that Exhibit AI, for identification, was published in 1949?

The Witness: That is what I intended to say, yes, sir.

The Court: The objection is overruled and it is received in evidence. [376]

(The document referred to was marked Defendant's Exhibit AI, and was received in evidence.)

The Court: Do you offer AE and AF, for identification?

(Testimony of Jack Kice.)

Mr. Lyon: I don't know whether he is through. I was going to wait until he finishes his testimony, because they are illustrative, your Honor, and then I will offer them.

The Court: Are you finished with those charts, AE and AF?

The Witness: No, I am not through with them yet.

Here, again, just to make matters clear, is the lower box.

Q. (By Mr. Lyon): You are referring to AF?

A. In Exhibit AF, lower box, and the upper box or flue, as we prefer to call it, since it is nothing more than a flue. Exhibit AE, I would like to show you a problem that has been common to all wall heaters. The fact that this area directly above the wall heater in the wall——

The Court: Which you have marked with a red "X"?

The Witness: Which I have marked with a red "X", —would get warm, sometimes even hot. The problem was due to the fact that the vent stack here would get rather warm, it would get hot enough that it could even blister paint, and has been a problem that all manufacturers have encountered from the time wall heaters were first brought out. Because of that problem many installers would line the stud space with [377] a metal liner.

Mr. Lyon: You are now drawing on AF?

The Witness: Particularly in that section of the stud space surrounding the flue.

(Testimony of Jack Kice.)

I have shown that liner in purple on the sketch on Exhibit AF.

That was a fairly common practice. Particularly we used a material which is known in the trade as Transite, which is a pressed Portland cement and asbestos composition material, quite satisfactory in most respects except that it does transmit heat rather rapidly, and the high degree of transmission of heat was responsible for the temperature increase.

The idea of lining the stud space led, I think, to the development of the double wall flue pipe known as Metalbestos, and Amerivent and Payne-A-Vent, three different types of double wall ventilating flue material that are or have been on the market.

Q. (By Mr. Lyon): Just a minute, Mr. Kice. When you refer to Metalbestos, and so forth, are you referring to an item such as that described in Exhibit T?

A. Exhibit T is a piece of literature that describes the Metalbestos: typical of the more recent developments of this company in the double-wall pipe.

The earliest Metalbestos pipe and Payne-A-Vent were almost exactly what we would have here if this were a metal stack [378] with a metal enclosure around it. And the improvement that is shown there is simply a type of end-forming piece that makes it easier to join the pipe together than attempting to join two annular pipes together.

(Testimony of Jack Kice.)

The Court: The Metalbestos leaflet, Exhibit T, does the record show when that was published?

Mr. Lyon: Yes. Mr. Hollingsworth admitted that that was in existence previous to anything that he had invented. I don't remember that the record says just what date it was, your Honor.

The Witness: The literature has a date, your Honor, 1949, on it. And Metalbestos was producing an earlier design of similar material as early as 1946, I am sure. Perhaps earlier than that.

This sheetmetal enclosure——

The Court: Referring, again, to Exhibit——

The Witness: As shown in Exhibit AF, was one way of helping to prevent excessive wall temperature, but depended on an opening in the plate above the stud space to permit the air to enter here, go up around the back and sides of the lower box, entering the annular space around the flue, and then discharge up into the attic. That was the flow of air that would ventilate the stud space and keep the walls cool.

Now, there were many codes, city codes, that would not permit the open stud space; required what they referred to as [379] a fire block here, (indicating), which might be cement, or some other fire-safe material, asbestos composition. Of course, then, that would prevent the ventilation that would keep the wall cool. So where those codes were in effect, our answer to it was to cut an opening in the wall, which we would provide with a grille like so (indicating).

(Testimony of Jack Kice.)

Now, that basic idea is old, too. My dad showed it to me when I was working as a helper in a tin-shop back in 1938 or '39. No. 1931 or '32, sometime in there. And it was old to him. It is shown in these early patents which I have mentioned, in Exhibit AA and AB. [380]

Now, I don't know for sure whether this was the origin of the idea back of the patent in suit or not. But it is my guess that it would have led to it.

Mr. Christie: May we have that answer stricken as speculative, your Honor?

The Court: Yes.

The Witness: I said it was speculative.

The Court: A great part of the witness' testimony as an expert are conclusions and speculations.

The upper grille, you say, is the answer to the problem of cutting off that ventilation up into the attic?

The Witness: That is correct.

The Court: When was that answer first found?

The Witness: I would guess that it must have been in the 1880's; would be when they first provided flues with grilles.

The Court: When you go back to that date, why, I don't suppose you were concerned with any building ordinances.

The Witness: No, simply a matter of conserving the heat. They referred to that as an economizer at that time.

The Court: But you say the answer to the build-

(Testimony of Jack Kice.)

ing ordinance of cutting off that ventilation into the attic was that upper grille.

The Witness: That is right.

The Court: My point is to what time did you refer when [381] you say that answer was given?

The Witness: I can't tell you.

The Court: As I understand it, you were speaking of the modern art.

The Witness: Yes.

The Court: The current art.

The Witness: I knew about it before the war as an answer to the building code problem when we used the Metalbestos in connection with our floor furnace vents.

Mr. Lyon: Isn't that development shown in Exhibit T, Mr. Kice?

The Witness: Yes, Exhibit T, which is the Metalbestos literature to which I referred. It shows a very clear diagram of the principle that I am showing in more detail here on my Exhibit AF.

The Court: Very well. I just wanted the record to show.

The Witness: Yes, sir. It is dated 1949. It was an old thing at that time; no claim at all for it being new.

I perhaps should refer to the Plaintiff's witness' testimony in regard to this as a matter——

No? Excuse me. If I shouldn't do that——

The Court: You will be arguing the case pretty soon, Mr. Kice.

The Witness: All right.

(Testimony of Jack Kice.)

The Court: You just testify and leave the argument to [382] the lawyers.

The Witness: Thank you. The illustration here is the top view of what—the illustration in the literature is an upper view of the box that I have shown in Sketch AF.

The Court: The “literature” being Exhibit T?

The Witness: Exhibit T. The literature is noted as T. My sketch is AF. And it shows a grille ventilating the stud space, and it brings out the fact that says, “If local building codes prohibit a top opening, install ventilating louvres as shown in the illustration.”

The Court: You have just now read from Exhibit T?

The Witness: I have read that from a paragraph in Exhibit T. And I will mark the sentence that I am quoting with a purple crayon on Exhibit T.

The Court: All right. Have you finished with AE and AF, now, those charts?

The Witness: I would like to put the ventilation pattern of air flow on Exhibit AF in blue crayon. Air would enter at the floor level, would rise up around the back and sides of the lower box, then enter the annulus between the metal liner surrounding the flue, picking up the heat from that and ventilating into the room.

And as far as I can see, that is completely the basic idea in the so-called secondary heat exchanger of the Holly patent. I see no differences in any of its functions. [383]

(Testimony of Jack Kice.)

And now, that takes us, I believe, to about 19——

Mr. Lyon: Are you through with these two exhibits now?

The Witness: Yes.

Mr. Lyon: I offer Exhibits AE and AF in evidence as representing, illustrating the witness' testimony.

Mr. Christie: No objection.

The Court: They may be received in evidence.

(The exhibits referred to were received in evidence and marked Defendant's Exhibits AE and AF.)

The Witness: That takes us then to about 1949, when we became interested in improving our line of wall heaters. Originally, we had developed them for minimum tooling expense, more or less to try the market out, and so we wanted to make all the improvements that we possibly could at the time.

There has been quite an issue raised over whether the Coleman Company saw the Holly unit before we made our own design. There is no mystery about it. Sure we saw it. We saw a dozen other wall heaters at the time, too; and studied them all over. I believe that is common practice.

Incidentally, when I was at the Holly Company taking the depositions, in their laboratory I saw half a dozen—perhaps not that many, but three or four competitive furnaces that they were looking at in the development of a new line of new forced air furnaces that they recently announced. So it is

(Testimony of Jack Kice.)

common industry practice to look at your competitors' [384] products.

The Court: That is common practice in most industries.

The Witness: Yes. We studied the Holly unit. And at that time you will recall there was no patents that had been issued, and we did not believe that there could be a patent on the device, on their design, at the advice of our counsel. Not Mr. Lyon, but our regular counsel in Chicago. This opinion was based on a study of the prior patents, and also on a study of what was common trade practice at the time. And the illustrations that I have just given you are the factors that were involved in our thinking which made us believe that there was no possibility of a patent.

Now, we did have a design, that was quite similar to the Holly device, that we experimented with. But we did not produce it because, frankly, we couldn't make it work. It would not——

Mr. Lyon: Is that shown in any of the exhibits we have put in, Mr. Kice?

The Witness: We referred to that in the New Products Committee minutes that were just handed in evidence this morning.

The Court: Exhibit Y?

Mr. Lyon: I will check, your Honor. Exhibit Y, yes.

The Witness: Exhibit Y indicates that we had been unsuccessful in the experiments with the device that was similar to Holly in that it brought air into

(Testimony of Jack Kice.)

a space around the lower box at the floor, and simply allowed that air to feed up to the—through the stud space to the ventilated flue stack, and then directly into the room.

In fact, we had the cooperation of the American Gas Association at Cleveland in an attempt to make that work in that their testing of it was not successful in our adaptation of that old scheme. So we would like to——

Q. (By Mr. Lyon): Mr. Kice, you failed to pass the AGA test with that type of heater?

A. That is right. And after we found that it was not successful, we were—we decided that there were some fundamental faults with that type of thing, anyhow, and we did not carry on, for a long period of time, attempting to make that one operate, but went to a design that would not be dependent on maintaining an unrestricted flow or unrestricted channel in the stud spaces.

I think that line of thinking is best illustrated by these charts (indicating).

Mr. Lyon: The witness has designated a chart which I will ask the clerk to mark——

The Clerk: Exhibit AJ.

Mr. Lyon: ——Exhibit AJ.

(The chart referred to was marked Defendant's Exhibit AJ for identification.) [386]

The Witness: Exhibit AJ is a scale—excuse me. It is not necessarily a scale drawing—carefully drawn exhibit, taken from the Holly patent, not from the actual project. Incidentally, there are a

(Testimony of Jack Kice.)

number of differences between the actual production and the patent drawing; most important of which is that there is a bottleneck, or a neck in the radiator before it joins the draft diverter, which is not shown or implied in their patent. This does not show the bottleneck. This I believe does illustrate the air flow that is depended on for ventilation of the lower box and the upper box, in green. The burner and lower radiator, which is the primary heat exchanger, and the draft diverter, are shown in red. The flue products, the products of combustion going up through the flue is shown in orange.

If you will recall the exhibit that I just showed, Exhibit AF, it has identical air passages for ventilation to this shown in the patent.

Q. (By Mr. Lyon): What color are those air passages shown in in this drawing, Exhibit AJ?

A. The ventilation air passage is one stage of ventilation shown in green entering at the floor level, going upward around the lower box and entering their so-called secondary heat exchanger and discharging into the room.

Q. That is shown in Exhibit AJ?

A. Quoting from the patent, it says, "Air flowing upward [387] outside the first box and inside the wall." And then, "Not that this is the only source of air for the second box." There is no other source of air for it.

Now, I would like to refer to the next exhibit——

Mr. Lyon: I will have the clerk mark it.

The Clerk: Exhibit AK.

(Testimony of Jack Kice.)

Mr. Lyon: AK for identification.

(The exhibit referred to was marked Defendant's Exhibit AK for identification.)

The Witness: I think it would be very obvious why we decided that we did not want to do it like Holly, even though we did not think they could obtain a patent at that time.

A large share—I will not say the majority, but certainly a large share, perhaps, 25, 30, 40 per cent of our wall heaters, are installed in plaster walls. Out here in the Los Angeles area, from my observations, I would guess that far more than half of the walls are made of plaster. And plaster, of course, is forced into the openings in the lath, smooth on the outside but extremely rough on the inside. Those plaster keys which plasterers depend on to hold the plaster on the lath might project in against the back of the lower box and would restrict and probably completely cut off any air flow up the back of the heater. It is also possible that the studs would not be accurately located. While they are supposed to be 16 inches apart on center, carpenters [388] may locate a pair of studs 15 inches apart or $15\frac{1}{2}$ inches or maybe $16\frac{1}{2}$ inches. They aren't extremely accurate. So the space on the side of the heater could also be badly restricted. So that we determined that we could not depend on an unrestricted channel up the back or the sides of the lower box.

Now, here is what would happen in the case of the Holly top design in a plaster wall that had these

(Testimony of Jack Kice.)

restrictions: Plaster keys or other surface roughness can restrict the wall space, which is the only passageway for air to the second box; and this is the only source of air on which both boxes are dependent. And the reduced air flow then through the second box can cause the excessive temperature that we are trying to guard against. I would refer to that as the, this second stage, as a hot restricted air discharge. And I think you could refer to it as a suffocated second box, because it can't get air. Of course, that would not restrict the flow of air through the lower box, which has its own self-contained air channels.

Now, I would like to get this one marked, please.

Mr. Lyon: Your Honor, I have not marked these in advance because I did not know the order, and I think it would be more confusing to be bouncing around.

The Witness: AL for identification.

The Clerk: AL for identification. [389]

(The exhibit referred to was marked Defendant's Exhibit AL for identification.)

The Court: The last one is Exhibit AL for identification. Mr. Clerk?

The Clerk: Yes, your Honor.

The Court: Have you finished your testimony as to AJ and AK?

The Witness: Yes, I have.

The Court: Do you offer them, Mr. Lyon?

Mr. Lyon: If he is finished with them, I will

(Testimony of Jack Kice.)

offer the last two exhibits, AJ and AK, as illustrative of the witness' testimony.

Mr. Christie: No objection.

The Court: They may be received in evidence.

(The exhibits referred to were received in evidence and marked as Defendant's Exhibits AJ and AK.)

The Witness: This exhibit which has been marked Exhibit AL is shown primarily to illustrate the fact that Holly's unit has the design characteristics that I have been referring to. This is an advertising man's sketch, which I presume was based on the patent drawing. But I note that he omitted the draft diverter in the advertising drawing, which of course was purely a mistake. But I produce it to show a rather odd thing here. I think we all agree that air, hot air, rises. And yet we have got some hot air arrows here that have been [390] trained to go down. They come up like so—and I will illustrate. The illustration shows them going up to the top of the stack and going down and out the grille.

Now, I am not being facetious in referring to the "trained arrows," necessarily. But we wanted to call attention to another design fault in this Holly design that we wanted to guard against in our own design. [391]

That portion is inclined to be very sluggish on air flow. It could not have normal gravity air flow in it, and from our tests it got very hot.

The Court: That portion being——

(Testimony of Jack Kice.)

Mr. Lyon: Would you mark that portion with something or other?

The Witness: All right. I will mark that with a red crayon and just mark it with the word "hot."

Q. (By Mr. Lyon): I mean the limits of the section that you are talking about.

A. I have shaded that section in red.

Mr. Lyon: Thank you.

The Court: It is a portion of the flue above the upper vent, is that it?

The Witness: That is a portion of the so-called secondary heat exchanger in the Holly design.

The Court: Above the——

The Witness: Above the outlet grille.

The Court: The upper grille?

The Witness: Above the secondary heat exchanger outlet grille.

Q. (By Mr. Lyon): Mr. Kice, in the patent is that closed at the top or open?

A. In the patent and in their actual unit it is closed at the top. Our design is entirely different, your Honor. [392]

Now, another reason for showing this exhibit is that it refutes this rather high-flown argument in the patent, couched in terms I am sure the examiner did not understand, regarding the critical velocities and the laminar versus turbulent flow, and so forth, in the flue itself.

We show here in a copy of their ad that their 25,000 B.T.U. heater has a vent size, an oval 2 inches by $6\frac{3}{4}$. Their 55,000 B.T.U. unit is also an

(Testimony of Jack Kice.)

oval vent 2 inches by $6\frac{3}{4}$. And yet it handles about 220 per cent more products of combustion than the little unit. In other words, the velocity would be more than twice as high in it, in that flue.

All of the Holly wall heaters in the entire line have the same size flue. And they even call attention to it in the text of their advertisement, that the outlet fits Type B 4-inch oval vent.

It is the same size vent that everybody in the industry uses for that size wall heater.

We use it in our Model 60, 61, and 62. There is nothing critical whatsoever about the size.

All units that I know of, all wall heater units that I know of, have a relationship between the flue and the lower box in which you can say that the lower box was substantially larger in cross-sectional area than the flue.

I believe that covers the essential points in this exhibit. [393]

Mr. Lyon: I will offer that in evidence and not restrict the offer this time, as Defendant's Exhibit AL.

Mr. Christie: We admit the authenticity as a Holly ad, your Honor.

The Court: Very well. Received in evidence.

(The exhibit referred to was marked Defendant's Exhibit AL, and was received in evidence.)

The Witness: Has this one been marked (indicating)?

(Testimony of Jack Kice.)

Mr. Lyon: I don't see a marking on it. We will ask the clerk to mark it.

The Court: Isn't that Exhibit Z?

The Witness: I thought it was, too.

Mr. Lyon: So did I.

The Clerk: The tag isn't on it, that is all. It is Exhibit Z. That is in evidence.

The Witness: I believe that this illustration, compared with the illustrations that I have just shown of the Holly, will make very clear the fundamental differences between their design and our design, which as I mentioned both go back to different patents.

Mr. Christie: May the record show which exhibit this is? I don't believe it is clear.

The Witness: Yes. Thank you. This is the sketch that was referred to a little earlier in my testimony and is marked as Exhibit Z. [394]

We do have a typical heater, and it has a ventilated flue stack. The design of the ventilated flue stack is entirely different in the way it functions, in our reasons for using it, almost any comparison that you want to make, from the Holly.

In the first place, we consider our heater design in three stages. Later I will show you a fourth stage, too, but the most important are three separate stages.

The first stage inlet is for circulation air and for the air for the burner. It enters through the lower grille and is intended for the first box only. There is also a portion of that air that is intended to flow

(Testimony of Jack Kice.)

around the lower box casing and released back into the room through the grilles in the side of the lower box casing, which I showed you earlier.

Q. (By Mr. Lyon): Do you mean the grilles 9 and 10 on Exhibit 24-A?

A. The grilles 9 and 10 on Exhibit 24-A.

The second stage is shown in green, the ventilation air passage is shown in green, and includes an independent air source built into the top of the cabinet shell.

We believe it is basically different and have applied for patent on it.

And the outlet for the second stage is the lower half of a grille mounted above the unit in the wall.

The Court: That is what we have referred to here as an upper grille, isn't it?

The Witness: We have been referring to that as the upper grille, that's right.

Now, that is a part of the economizer, but only a part of it, because the second half of the economizer is just as important. It receives air for the third stage of ventilation through the upper half of the top grille, and ventilates that on up into the attic through a vent outlet.

In our four-foot economizer model, that vent——

Mr. Lyon: Which exhibit number is that?

The Witness: Which is Exhibit 24-B, the outlet to which I am referring is in the top, as you see.

The Court: And the intake is the upper half of the grille space? Toward the center?

(Testimony of Jack Kice.)

The Witness: This is the intake of that separate passage.

Mr. Christie: May I see that, Mr. Kice? Will you refer again to the intake that you just mentioned, please?

The Witness: This is the intake, and this is the outlet for the third stage of ventilation, which is there to prevent the build-up of temperature in that space, which we found to be sluggish in the Holly design.

The Court: The intake is the upper portion of the aperture near the center of the shell of the economizer, [396] the four-foot economizer, which is Exhibit 24-B?

The Witness: That is exactly right.

The Court: The outlet is at the upper end on either side?

The Witness: That's right.

The Court: Of the flue?

The Witness: Of the flue, yes, sir.

Now, we have a similar problem in the three-foot economizer, which is indicated here as Exhibit 25-A, and we solved it in a similar manner. However, as you will see, the upper grille is divided in two halves and the aperture is divided in two halves with a divider that runs the whole way across, as in the other design. It has a ventilating passage that comes up around the flue, and an outlet opening.

The Court: It is an annulus around the flue?

The Witness: The annulus around the flue is

(Testimony of Jack Kice.)

open to the attic. The adapter plate, which we provide, is not permitted to go down over to close off the annulus. There are stops there that retain a ventilation outlet for the annulus in the third stage.

So that all of our designs have the provision for ventilating the upper half of the—the upper portion of the economizer, and prevent a build-up of temperature at that point.

I believe I am ready for my next exhibit which illustrates [397] how the Coleman design solves this very important problem of what to do about plaster walls, how to prevent the plaster keys from restricting the ventilation around the entire heating device.

The Court: This last card has been marked Exhibit AM, for identification?

Mr. Lyon: Yes.

The Court: The one to which the witness is now about to refer?

Mr. Lyon: That is right.

* * * * * [398]

Q. Would you finish your explanation of these charts, Mr. Kice, please?

A. We were discussing the Coleman unit installed in a plaster wall, and I was bringing out the fact that even though the space up the back or the sides might be restricted or fully closed, that it still would not affect the performance of the Coleman unit, because the economizer, ventilated flue passage, is completely self-contained within the structure that they manufacture, and therefore it is under our control.

(Testimony of Jack Kice.)

There is no question about whether or not we have adequate area, and no question about the flow of cooling air through the flue.

The Court: You have before you Exhibit AM for identification? [400]

The Witness: The exhibit is AM from which I am talking.

Q. (By Mr. Lyon): Mr. Kice, have you had tests made to determine the heating efficiency of the 67 heater when that was plugged, as you have shown in Exhibit AM?

A. Yes, sir, Mr. Lyon. Our tests that we have conducted prove that there is no change in efficiency, heating efficiency of the wall heaters, of the Coleman heaters, when this is completely plugged to prevent air flow up the rear stud space.

The Court: Now, would you refer over here to this lower box of the Coleman heater, which is exhibit——

The Witness: 24, your Honor.

The Court: That black metal in there, that's the radiator, I suppose, is it?

The Witness: We call this the radiator. Or it could be called the primary heat exchanger.

The Court: Now, behind that does the air rise from the bottom?

The Witness: Yes, sir. The air rises on both sides of the heat exchanger surfaces, or the radiator surfaces, and absorbs heat from the fire inside the radiator.

The Court: That behind the radiator, how does

(Testimony of Jack Kice.)

that get out of the top of the box, of the lower heater box?

The Witness: That is the reason for this opening at this point (indicating). In other words, the air comes up [401] back of the exchanger, radiator, and comes out through the front grille, through the spaces that we provide on both sides of this, the bottleneck affair that I have been referring to.

The Court: Is the only escape from that heater box the outlets on the sides, at the top—those vents at the sides 9 and 10 on Exhibit 24-A?

The Witness: Now, this is the path that I have been discussing. The air that comes out here comes out through the main heating grille.

The Court: My question is this: That lower box—

The Witness: Yes, sir.

The Court: —are the only two ways to get air out of that, one through points 9 and 10, the side vents, and one through the main grille?

The Witness: The primary heating is accomplished through the main grille. Now, the vents through the side are vagrant losses of heat that come out through the casing.

The Court: My question is, are those the only two points of escape for air from that lower box?

The Witness: They are the only places that air can come out, excepting for a small amount of leakage, which we have referred to in our tests. The leakage would be insignificant in the performance

(Testimony of Jack Kice.)

of the unit. And we do not depend on this leakage whatsoever in the performance. [402]

The Court: That answers my question.

Mr. Lyon: I will offer this last exhibit AM in evidence as illustrative of the witness' testimony.

Mr. Christie: No objection.

The Court: It may be received in evidence.

(The exhibit referred to was received in evidence and marked as Defendant's Exhibit AM.)

* * * * * [403]

Mr. Lyon: I hand you the chart marked for identification AN; will you point out to the court what that illustrates?

The Witness: This chart can be covered in just a minute, sir.

We are calling attention to the fact that this unit is similar to the Model 67, this Model 68 is similar to Model 67, except that it has a rear outlet which projects through the stud space and permits air to be discharged into the opposite room. The neck of this outlet projects through whatever space there could be between the back of the unit and the inner wall [405] surface, and effectively closes off that area. That is one of the reasons why we, in the original design concept of this unit, determined that this would be more desirable in having an inlet area that was at an intermediate point, rather than to have it in that area that was dependent on a channel up the back.

I believe that is all I need to say about that.

(Testimony of Jack Kice.)

It just illustrates the advantage of the built-in air channel.

Mr. Lyon: I will ask that this one be marked next in order. This is merely proof, your Honor, that these economizers do operate from the air coming up from midway up, and do not operate from the air behind them.

The Clerk: Defendant's Exhibit AO, for identification.

(The exhibit referred to was marked Defendant's Exhibit AO, for identification.)

Q. (By Mr. Lyon): I hand you Exhibit AO and ask you what that illustrates.

A. Exhibit AO shows the Coleman Model 69 dual-wall heater, which incidentally is very similar to Model 64, the difference being in the size of the burner, the B.T.U. capacity. The 69 is a 55,000 B.T.U. input model; the 64 is a 45,000 B.T.U. input model. And, incidentally, we used a ceramic coating on the combustion chambers of the larger [406] model, permitting it to operate at a higher temperature.

Our purpose in showing this is to illustrate the very important advantage here of being able to have the independent air channel built in beginning at the intermediate point, rather than depending on a channel from the floor. Because here there is no channel whatsoever from the floor. The dual-wall model opens into both rooms and projects through the wall from one side to the other. The green shading that I have on this drawing illus-

(Testimony of Jack Kice.)

trates that in this model the air would enter through the grilles built into the top ledge of the cabinet from each room, from this side and on this side, giving us the air we need to wipe the heat from the surface of the flue, and it discharges then into the room, to one room or the other.

We built the unit in this manner to permit us to take air from either side.

Now, I anticipate an argument that we have a bracket here that is not fully closed. And the reason for that is to permit us to take the air from the adjacent wall in the dual-wall arrangement, or—from the adjacent room, the dual-wall arrangement or back-outlet arrangement. The extra air helping us to keep the temperatures down.

Now, the air that takes care of the upper section of the vent is exactly the same as it was in Model 67.

Q. (By Mr. Lyon): Mr. Kice, in all of these models, [407] 64, 67, 68 and 69, were identically the same economizers used?

A. In all of our models made, I have to refer to a date here, if I may——

Q. I mean, you used No. 4 for a period of time on all of them——

Mr. Christie: Your Honor, I believe that has already been stipulated.

Q. (By Mr. Lyon): ——and then No. 3?

A. Yes, sir.

The Court: Counsel says it has already been stipulated.

Mr. Lyon: I was pointing it out to the court.

(Testimony of Jack Kice.)

The Court: The same economizer was used in all the models?

The Witness: In the entire line, yes, sir. Except we changed from four-foot to three-foot economizers at an intermediate period here some year or year and a half ago.

Q. (By Mr. Lyon): On this 69 you actually had two of these grilles, one in each room, like 24-A?

A. The shells, what I call the cabinet shells, are identical in each room with the inlet grilles that are identical.

Mr. Lyon: I will offer Exhibits—which ones haven't I offered yet?

The Clerk: AO and AN. [408]

Mr. Lyon: —AN and AO in evidence, as illustrative of the witness' testimony.

The Court: Received in evidence.

(The exhibits referred to, marked Defendant's Exhibits AN and AO, for identification, were received in evidence.)

Mr. Lyon: I have two charts here. Will you mark these, please?

You already have. These have been marked AG and AH.

The Witness: I refer next to Sketch AH. This is a front view of the Model 67, or any of the other models we have been discussing, and I am using it because I think that it illustrates, perhaps better than the side sectional view, the paths of air flow that we depend on for ventilating the lower heater and the upper heater in separate stages.

(Testimony of Jack Kice.)

Now, this view shows more clearly the outlet grilles on each side of the cabinet shell, near the top, which ventilates the shell and the lower stud space.

The paths of air flow are illustrated by this overlay. I about ran out of colors and arrows in drawing this, but I believe that it will show up rather clearly.

I have not indicated the primary circulation of air, but only the ventilating air passages through the unit. [409]

Q. Primary, is that exhaust, the burner gases?

A. No. The primary air circulation is the air that enters the large grille here and comes out into the room through the large grille at the top of the lower heater.

Q. Oh, thank you.

A. And the red arrows that I show here is the air and the products of combustion that would pass up through the lower box, in other words, the heater itself, enters the flue, and is exhausted on the outside. I note that that opening also permits air to enter the lower portion of the heater shell, and it is indicated here by the blue arrows.

The ventilation passage would be up—looking at it in the front—it is up the columns of the outer shell alongside the grille on each side here. Part of that ventilation air also goes up between the heater and the stud. The stud I have indicated here in orange. I hope you can see it from there. The studs right there (indicating). So that there is a

(Testimony of Jack Kice.)

passageway that we keep ventilated between the lower box within the stud space and the stud. And that air is free to come out through those grilles.

The Court: By "those grilles," you are referring to the side grilles?

The Witness: Thank you. They are the side grilles near the top of the shell.

The Court: Marked 9 and 10 on Exhibit 24-A?

The Witness: Marked 9 and 10. And the space in back of the heater, in the case of the single wall, it is also open to the same outlets, and that is the area through which it is most free to get out of the unit. Remember that that area may be closed off by plaster or other restrictions, and in all cases it would be very small, even with the smoothest type of wall construction it would be a restricted passageway and would offer considerable resistance to air flow. We merely want to permit what air is heated to get out of the lower box, because we do not want that warm air to enter the upper box. We want to start with fresh air, now, because it is cooler. That is, fresh air enters the top, the intermediate grille at the top of the heater casing, which we discussed; and there are three passageways for it to take. A part of it is shown by the green arrows.

The Court: By the "intermediate grille"—would you identify that on 24-A? Would that be points 7 and 8?

The Witness: As shown by 7 and 8 on Exhibit 24-A.

(Testimony of Jack Kice.)

The intermediate grille permits air to enter. And the green arrows show that a part of the air is going through the economizer annular passageway that surrounds the flue,—this is inside the economizer—carrying the heat that would be emitted by the flue surfaces out into the room through the lower half of the economizer grille.

The purple arrows illustrate the air that is permitted [411] to flow alongside of the outside surfaces of the economizer to keep the upper stud space flushed of heat. And that air is allowed to enter that space through those holes that we provide in the mounting brackets, rather large size holes in comparison——

The Court: Rectangular holes to either side of the flue? Is that it?

The Witness: Well, $\frac{3}{4}$ inch diameter holes, that I am attempting to show; rectangular holes that permit the air to enter the economizer. But the others, smaller amount of air to flush out the heat that might be emitted from the outer surface of the economizer.

The Court: That air discharges into the attic, is that it?

The Witness: That is right, sir. The air coming up the outside would go out into the attic, where codes permit an opening to be there. Now, if the code would not permit that opening, it would not give us dangerous temperatures. We can have this area closed off snugly and still operate cool because

(Testimony of Jack Kice.)

of the amount of ventilation that we are throwing through the interior annulus. It is simply to our advantage to keep it as cool as possible.

That, incidentally, is a rather important point that I want to make; that all the way through within our design we are attempting to keep this thing cool. We are not attempting [412] to use it as a heater.

The Court: By "this thing" you are referring to the so-called economizer?

The Witness: Thank you. The economizer is not attempted to be used as a heat exchanger, in an important sense of the word. We simply economize what heat there might be available to us, and it is of a much smaller order than in the Holly arrangement. The final passage of ventilation air, which I would illustrate here by the brown arrows, enters the upper half or upper portion of the economizer above the divider, and this upper half of the grille then permits the air to enter here and then discharge through the top opening of the annulus into the attic. If it should be—that is a relatively large opening in the 4-foot economizer; probably larger than was necessary, sir. Enters through up here through the annulus and out into the attic. In the 3-foot economizer we reduced the size of that opening, but still have all that we need for the much shorter portion of flue that we are trying to cool.

The Court: You have referred to a radiator as a heat exchanger. Is that the terminology of the trade?

(Testimony of Jack Kice.)

The Witness: We refer to the lower radiator, in language of the patent, as a primary heat exchanger.

The Court: When you use that term "heat exchanger," are you using a term that is common in the trade? [413]

The Witness: Yes, sir.

The Court: Is it synonymous to radiator?

The Witness: More commonly called a heat exchanger than it is a radiator.

The Court: Is there a difference, or is that just a new term?

The Witness: In the language we have been using here they would be synonymous. Now, I do not believe that the secondary heat exchanger that Holly refers to, however, is synonymous with what we call a ventilated flue stack, inasmuch as they have deliberately designed, in my opinion, sir, the secondary—the lower radiator or primary exchanger somewhat smaller, and with less heat exchange capacity than we do. Because, they do depend on their secondary heat exchanger for a part of the exchange of heat between the flue gases and the air; a rather considerable part. And we are not dependent on that to operate satisfactorily. We are merely interested in ventilating that flue.

The Court: You both salvage that heat, so to speak?

The Witness: That is right.

The Court: And try to put it out in the room, and it does double duty; one, it is depended upon

(Testimony of Jack Kice.)

to heat the room, No. 1; and it tends to cool the area surrounding the lower heater, No. 2.

The Witness: That is right; just as Browell did in 1882. [414]

I would say that that about covers my exhibits.

Oh, I believe I have one more here which was Exhibit AH, already marked. And I would just like to make the comparison perhaps just a little more clearer in the action that takes place between—as comparing Coleman, as I have just done, and all of the paths of air flow that we provide to get three or four stages, depending on how you want to turn the stages; but at least three stages of ventilation cooling.

The Court: This chart is Exhibit——

The Witness: This chart that I am showing you here is AH. Oh, excuse me. The chart that I just mentioned was chart AG. Yes, sir. It shows the Coleman circulation.

The Court: That's the chart you last testified about, is it, AG?

The Witness: Chart AG was the one I was just discussing before we went over to look at the exhibit——

The Court: The chart you now have before you, AH?

The Witness: That is correct.

The Court: That involves a Holly heater?

The Witness: This shows the Holly heater that they built in and depend on. This shaded portion here would be the lower box. This darker cross

(Testimony of Jack Kice.)

hatched section is their flue or, as they would call it, the secondary heat exchanger, surrounded by a ventilation shell or annulus.

Now, they do not provide any built-in passage at all in [415] the lower section but depend on air entering through the lower grille or the—there is actually not a grille there. They just mount the unit up above the floor and the skirt covers an opening in the bottom. The grille in the front, I believe, is merely for burner air. Air comes up through here and would be free to go up through the stud space at the side of the unit in the single wall model. I frankly don't know how they get the air up the unit for the dual wall models; but I will not attempt to explain that. Air can come up through here (indicating). Now——

The Court: “Here” being the annulus between the lower box and the stud, is that right?

The Witness: One of the paths is between the lower box and the stud, and the other path that I have attempted to illustrate is merely in the column area at the side of the shell.

The Court: By that do you mean the area between the radiator and the wall of the shell?

The Witness: I believe I can illustrate on their exhibit better.

This space which would be alongside of the lower box.

The Court: Between the outside of the lower box and the inside of the trim, is that right?

The Witness: That is correct; between the out-

(Testimony of Jack Kice.)

side of the lower box and the inside of the shell or trim. It provides—— [416]

The Court: Shell or trim being Exhibit——

Mr. Lyon: 20-A, I believe, your Honor.

The Court: 20-A?

Mr. Lyon: What is the tag on there, Mr. Kice?

The Court: Exhibit 20-B, would it not, called “panel”?

The Witness: 20-B is the identification.

The Court: The shell is 20-A. That is the secondary heater.

The Witness: Now, that would be ventilated, just a small area of ventilation permitted at the top of the trim, as I understand their design.

The Court: I said Exhibit 20-A. It is Exhibit 20. The lower box, the radiator, Exhibit 20, Holly.

The Witness: Thank you. Now, the air that I have just been referring to has only one outlet, which is the grille in the economizer. Excuse me. The grille in the secondary heat exchanger, which I will shade up here in blue. The path of flow then has to come around the solid brackets that they provide, and would come out of the grille into the room as I have shown here in the blue lines, and will indicate with arrows at the extremities.

The Court: That is the upper grille?

The Witness: That is the upper grille of the Holly secondary heat exchanger. The flow of air around the flue, which they referred to as the secondary exchanger, would be [417] somewhat as I have shown with the spiral lines, I believe. There is

(Testimony of Jack Kice.)

some question in my mind as to what occurs in this more or less stagnant portion above the grille. But I would presume that part of that heat would find its way out of the grille. A part of it would find its way as conduction and convection through the wall. And that single stage is the Holly arrangement and the multiple stage is the Coleman arrangement.

The Court: Now, with respect to the Holly, where do you say the air comes from that is emitted from the upper grille?

The Witness: The Holly unit depends on its air supply from the opening near the floor; and is dependent on a channel being provided by the carpenter or the plasterer between the lower portion and the stud space.

The Court: In other words, it is your understanding that all the air which is emitted from the upper grille must come from the space between the studs and the heater, exterior of the heater box?

The Witness: That is my understanding exactly. And it is the way I read their patent.

I don't believe there is anything else. [418]

The Court: None of it can come from the so-called lower box proper, the interior of the lower box?

The Witness: No, your Honor. The air supply for the secondary heat exchanger must come from the space outside the lower box, between it and the stud space.

(Testimony of Jack Kice.)

The Court: By the lower box I mean Exhibit 20, and you so understand it, do you?

The Witness: Does Exhibit 20—that includes this? Yes, sir.

The Court: It does not include the trim?

The Witness: They could get a little air up through the columns of the trim.

The Court: Up into the——

The Witness: Up into the space above the lower box.

The Court: Up into the heat exchanger?

The Witness: Up into the secondary heat exchanger, yes. But there would be no chance for additional ventilation air outside the box.

As a matter of fact, their instructions specifically show a situation where the stud space may be deeper than their bracket. If the stud space is deeper than the thickness of this bracket, they provide for a strip of wood to be nailed——

The Court: You are referring to the base of Exhibit 20-A, the secondary heat exchanger?

The Witness: That is what I am referring to.

The Court: I referred to the trim just a moment ago. I mean the panel or shell.

The Witness: I have been calling it the shell.

The Court: Exhibit 20-B. You so understood it?

The Witness: That is the way I understood it, sir.

You will note that this bracket that I have been referring to at the base of the secondary heat exchanger is completely solid, no openings, and the

(Testimony of Jack Kice.)

instructions call out that if the stud space is deeper than the width of this bracket, that a piece of wood should be built in there, or some other closure, so that the air cannot—so that all of the air has to go up through the annulus and is not permitted to go up here.

We specifically want air to go up in here to flush out the upper stud space of heat, if it is possible to do so.

You will note, too, that there are no openings at all in the top of the secondary heat exchanger, and the upper box is one continuous space without any division whatsoever.

The Court: In both your last statements you refer to Exhibit 20-B?

The Witness: That's right.

Mr. Lyon: That is 20-A that you are referring to.

The Witness: 20-A is the secondary heat exchanger.

I would call your attention, too, to the difference in the size of the grilles there. [420]

Q. (By Mr. Lyon): Mr. Kice, I don't know that the court understood it or not, but in neither the Coleman or Holly heater, as exemplified by any of the exhibits here, does any of the air from the inside of the lower box find its way into either the economizer or the secondary heat exchanger?

A. The air that would come up through the primary heater, through the large inlet grille from the room, and then after it is heated back out into the room through the large supply grille, cannot—

(Testimony of Jack Kice.)

Q. Neither of these heaters rely on that air that goes on the inside, around the first radiator—it is not used in any effective way at all in the economizer or the secondary heat exchanger, is it?

A. There is no way for it to get in there directly. The only way would be indirectly.

The Court: It is my understanding, gentlemen—you correct me if I am in error—that in neither one of the devices is it intended that any of the air directly heated by the lower box and in the lower box shall go into the upper box?

Mr. Lyon: That is right.

The Witness: That is right, your Honor.

The Court: It is intended that the air heated in the lower box be emitted through the main grille in front?

Mr. Lyon: I will agree with that statement. [421]

The Court: Is that your understanding?

Mr. Christie: That's right.

The Witness: It would be possible that air could come out here and be reheated here, but it wouldn't be intentional.

The Court: It would be room air once it comes out of the heater?

The Witness: Yes, it is room air.

The Court: I suppose it is possible that you get this same air three or four times in the course of a very few moments, depending on the air current; wouldn't it be?

The Witness: That's right, sir.

(Testimony of Jack Kice.)

The Court: There is no way of measuring that, I don't suppose.

The Witness: It would be very difficult.

The Court: Unless you could color the air in some way.

The Witness: My reason for answering the question in that way is because I believe there has been some misunderstanding of the air currents that went into our exchanger, because of certain smoke tests in which there was some recirculation that come out through the outlet grille of the heater into the room and then bypassed back into the inlet of the economizer, it could be very easily misunderstood as to what went on there without a full understanding of what it is for. [422]

Mr. Lyon: I will offer AH and AG in evidence as illustrative of the witness' testimony.

Mr. Christie: No objection.

The Court: Received in evidence.

(The exhibits referred to, marked Defendant's Exhibits AG and AH, for identification, were received in evidence.)

Q. (By Mr. Lyon): Now, Mr. Kice, were you present at the taking of the deposition of Mr. Landsberg—what was the date of that deposition?

Mr. Hoegh: July 26 and 27th, 1954.

Q. (By Mr. Lyon): —July 26, 1954?

A. Yes, I was, through the entire deposition.

Q. Who else was present at the taking of that deposition?

A. Mr. Warren Blazier from the Foundation

(Testimony of Jack Kice.)

for Industrial Research of the Wichita University, and yourself, Mr. Hoegh, Mr. Hollingsworth, and of course Mr. Landsberg and his assistant whose name I don't remember. It began with a "P."

Q. Do you recall anything concerning the method of supplying SO₂ to the furnaces during that test?

A. My impression was that there was no regulation that was at all under control. The assistant operated the handle of the control valve on numerous occasions during the [423] test.

Q. When Mr. Landsberg didn't get a result, did he ask his assistant to adjust the SO₂ supply?

A. Yes, he did.

Q. Several times, didn't he?

A. Certainly more than once. [424]

* * * * *

Mr. Lyon: If your Honor please, I overlooked two exhibits that should have been marked as Exhibits A and B. Exhibit A is the abandoned application of John H. Hollingsworth and Karl A. Bedell, which I will offer as Exhibit A.

The Court: Is there any objection?

Mr. Christie: No objection.

The Court: Received in evidence.

(The document referred to was received in evidence and marked as Defendant's Exhibit A.)

Mr. Lyon: And Exhibit B is the file wrapper of the patent in suit, which I will offer as Exhibit B.

The Court: Is there any objection?

Mr. Christie: No objection.

The Court: It may be received in evidence.

(Testimony of Jack Kice.)

(The document referred to was received in evidence and marked as Defendant's Exhibit B.)

Cross Examination

Q. (By Mr. Christie): Mr. Kice, would you tell me what the procedure is when you install a No. 67 heater of the Coleman Company, including the economizer, in a wall? What is the standard procedure, as you know it?

I will ask you the question more specifically. Is the wall finished before you put the lower box in?

A. Sometimes the wall is finished and sometimes it is not. More commonly it would be installed after the wall is finished, however.

Q. After the wall is finished? A. Yes, sir.

Q. Now, after the wall is finished, the plaster keys, if there are any, are hard and dry, isn't that true? A. Yes, sir.

Q. Now, on the back of the lower box, which is Plaintiff's Exhibit No. 24, do you find some ribs?

A. Yes, sir. Those spacer ribs are required by AGA, to prevent contact of the box against any inflammable material.

Q. Now, we have the same sort of ribs, do we not, on Exhibit No. 25? A. Yes, sir.

Q. And we have, do we not, the same sort of ribs——

Mr. Christie: I will withdraw that.

The Witness: I do not see them.

Q. (By Mr. Christie): Now, would not those hard ribs, those ribs that you have just identified

(Testimony of Jack Kice.)

on the Coleman lower box, about the plaster keys?

A. The plaster keys are very irregular and there is no assurance that the ribs would prevent contact of the casing against the wall. [426]

Q. But that is what they are there for, isn't it?

A. The purpose is to prevent contact with inflammable materials, such as wallboard.

Q. If they did come in contact with the plaster keys they would hold the box away from the plaster keys?

A. Undoubtedly the installer would knock out the little pieces of plaster that prevented the unit from going into place where they interfered with——

Q. Have you seen this happen?

A. Yes, sir, I have done it myself.

Q. Now, Mr. Kice, I ask you to look at Defendant's Exhibit AM, and I direct your attention particularly to the irregular black material at the rear of the wall—it is marked "wall" in the upper right-hand corner. Will you tell me what that is in this black line?

A. The irregular material indicated by the black irregular line?

Q. Yes. Did you prepare these drawings?

A. I drew them myself.

Q. What did you mean to indicate by this irregular black line?

A. Any irregular surface such as plaster on wood lath or metal lath.

Q. Metal lath or wood lath?

(Testimony of Jack Kice.)

A. Yes, sir. [427]

Q. Now, I believe you testified this morning that metal and wood lath are used to a great extent in housing construction——

A. Yes, sir.

Q. ——did you not?

A. Yes, sir.

Q. Have you any idea to what extent metal and wood lath are used in residential construction of the type where wall heaters are installed?

A. Well, of course, wall heaters are installed in all types of houses, old and new, and small ones and large ones. But usually in large houses they are installed as supplementary heating. But the market is divided a great deal. It is our opinion, which I would be unable to verify, that it would—I believe I said around a third of the—I believe I said from 25 to 30 per cent. I am not sure. The figure that we think is important enough that we need to provide for it, since you can't afford to have very many houses operated under hazardous conditions. If the value were less than I mentioned, it would still be important.

Incidentally, the use of wallboard is a rather spotty thing. In cities like Chicago, which happens to be a large part of our market, there is very little wallboard used for the simple reason that the Building Trades Unions have more control. [428]

Q. You would say that wood and metal lath plaster constitutes approximately 25 to 30 per cent of the residential installations in this country?

A. I used that figure merely to indicate that in our opinion it was an important amount. And I

(Testimony of Jack Kice.)

don't believe that it is possible to put an exact figure on it.

Mr. Christie: I will ask the clerk to mark a document of the United States Government entitled, "Housing and Home Finance Agency, Office of the Administrator, Division of Housing Research," as plaintiff's exhibit next in order.

Mr. Lyon: Is that what you gave me a photostat of?

Mr. Christie: That is right.

The Court: That would be 13, Mr. Clerk?

The Clerk: Yes, sir, 13.

(The document referred to was marked Plaintiff's Exhibit No. 13 for identification.)

Mr. Christie: May I stand here, your Honor—

The Court: Yes.

Mr. Christie: —momentarily?

Q. I call your attention to page 11, to the lines entitled, "Gypsum, wood and metal"—these constituting lines 3, 4 and 5 of the tabulation—and I ask you to tell me whether this agrees with your calculation, or estimate?

A. I believe this entire survey is based merely on new construction; does not take into account old construction whatsoever. [429]

I would certainly agree that there is a trend in new construction practice away from wood and metal lath. [430]

Q. Now, do you notice that the columns marked wood and metal have asterisks in them?

A. Yes, sir.

(Testimony of Jack Kice.)

Q. At several points? A. Yes, sir.

Q. And would you now refer to page 6, to the heading entitled, "Table 2 Structural Characteristics," and if you don't find out that an asterisk indicates that the percentage is less than .5?

A. I see that. However, I see another figure that gives for wood lath and plaster 37 per cent, for gypsum lath and plaster 62 per cent.

Q. Will you confine yourself——

A. There are keys, of course, through gypsum.

Q. Will you confine yourself momentarily to the material that I am asking you about at the top of page 11?

A. It is a part of the table that you showed me, sir.

Q. Does it not say—First, you find a column which is marked "1940 United States Average," is that correct? A. That is correct.

Mr. Lyon: If your Honor please, this is not proper cross-examination. He is having this witness read——

The Court: Is there any question about the figures that are in that pamphlet?

Is the defendant willing to accept them? [431]

Mr. Lyon: I don't know whether they are right or wrong.

The Court: It is a Government publication, and in the absence of evidence to the contrary I would accept them.

Do you offer it in evidence?

Mr. Christie: I offer it in evidence.

No. 14711

United States
Court of Appeals
for the Ninth Circuit

THE COLEMAN COMPANY, INC., a corpora-
tion, Appellant,

vs.

HOLLY MANUFACTURING COMPANY, a cor-
poration, Appellee.

Transcript of Record

In Three Volumes

VOLUME II.

(Pages 369 to 737, inclusive.)

Appeal from the United States District Court for the Southern
District of California, Central Division

FILED

AUG 30 1955

PAUL P. O'BRIEN, CLERK



No. 14711

United States
Court of Appeals
for the Ninth Circuit

THE COLEMAN COMPANY, INC., a corporation,
Appellant,

vs.

HOLLY MANUFACTURING COMPANY, a corporation,
Appellee.

Transcript of Record

In Three Volumes

VOLUME II.

(Pages 369 to 737, inclusive.)

Appeal from the United States District Court for the Southern
District of California, Central Division



(Testimony of Jack Kice.)

The Court: Is there any objection?

Mr. Lyon: No objection to it on that basis.

The Court: Received in evidence as Exhibit 13.

(The document referred to was marked Plaintiff's Exhibit 13, and was received in evidence.)

[See Book of Exhibits.]

The Witness: I would merely like to point out that this is an FHA bulletin and does not apply to all houses, or the entire market.

The Court: You may leave the argument to the attorneys, Mr. Kice. You have enough to do giving testimony.

The Witness: I am sorry.

Q. (By Mr. Christie): Mr. Kice, if it were true that less than one-half per cent of houses in the United States were built with rough plaster of the type that you have indicated on Defendant's Exhibit AM, that would indicate that your drawing was wrong, would it not, and misleading?

A. No, it would not. I don't agree that that figure covers all of the houses in which wall heaters are mounted. As a matter of fact, we even go to the expense of providing a plaster ground for this grille that we show, we provide it [432] with every heater that we manufacture, because we think that is so important.

Q. And the fact that 99 per cent of new housing construction, according to this bulletin, does not apply to materials that you used on your illustration here, does not influence your testimony one way or the other?

A. It does not.

(Testimony of Jack Kice.)

Q. Now, Mr. Kice, referring to Plaintiff's Exhibit 20, which is the lower box, I call your attention to the projections on the back, which I will mark in pencil 1, 2, 3, and 4, and I will ask you if you know what those projections are.

A. I presume that you are required to have those projections to prevent direct contact with the inflammable wall material, such as wallboard.

Q. If this Holly heater were installed in the wall, after the wall was completed, would those projections hold the heater away from the wall, the rear of the wall?

A. It would all depend on where the irregular projections were. It couldn't be installed if it were held out.

The Court: If it were not or were?

The Witness: If it were held out.

Q. (By Mr. Christie): Did you mean what you said, Mr. Kice? Will you explain your answer?

A. If the projections held the box out from the wall, [433] it would give you some difficulty in making the installation.

Q. It could be installed, though, could it not?

A. After you knocked the projections out of the way.

Q. And isn't it likely that anybody encountering that situation would knock the projections out?

A. At the points of contact, undoubtedly. But you would tear a wall down if you tried to knock them all out of the way.

Plaster depends on the keys to hold it to the lath.

(Testimony of Jack Kice.)

Q. Now, getting back to this matter of wall construction, what constitutes proper wall construction, does the Coleman Company make recommendations with respect to the construction of walls of houses in which their heaters are installed?

A. We make some notation of types of walls in our instructions.

Q. I hand you Plaintiff's Exhibit 9—10, I am sorry. May we have the official copy, Mr. Clerk?

I call your attention to a writing on the inside of the front cover, and ask you if you know what the Coleman Trend Home is.

A. Yes, I do. I am very familiar with it.

Q. Would you say that it represents modern construction? [434]

A. The Coleman Trend Home represents trends that we see in the most—that are coming in house construction.

Q. Well, you would agree with me that the report says, in the second paragraph, that the Coleman Trend Home features many outstanding trends in modern home building?

A. That's right. By "trends" we do not mean that it is a thing that is already prevalent, however. For example, it showed the use of complete year-around air-conditioning, which is a trend, but still only a very small proportion of houses have it.

Q. Would the Coleman Company deliberately recommend what they considered obsolete housing construction?

(Testimony of Jack Kice.)

Mr. Lyon: Your Honor, that is objected to as purely an opinion of this witness.

The Court: It is argumentative. Sustained.

The Witness: I am afraid I don't understand the question.

Mr. Lyon: You don't have to answer the question, Mr. Kice.

Mr. Christie: May I have these two sheets marked for identification as Plaintiff's Exhibit next in order, No. 14?

The Clerk: 14 is the next number.

The Court: Do you wish them both marked as a single exhibit?

Mr. Christie: If you please, your Honor. [435]

(The documents referred to were marked Plaintiff's Exhibit 14, for identification.)

Q. (By Mr. Christie): Mr. Kice, I direct you to the two papers that have just been marked Plaintiff's Exhibit 14, for identification, and ask you to identify these as drawings made for the Coleman Company of the Trend Home, which you have just referred to in connection with Plaintiff's Exhibit 10.

A. Yes, these are floor plans of the Coleman Trend Home. * * * * * [436]

Mr. Christie: The witness has identified this exhibit. May I have it marked in evidence as Plaintiff's 14?

Mr. Lyon: This is objected to as merely adding to the record and not material in any way.

The Court: Overruled. It will be received in evidence [437]

(Testimony of Jack Kice.)

The Clerk: Plaintiff's Exhibit 14.

(The exhibit referred to was marked Plaintiff's Exhibit 14, and was received in evidence.)

[See Book of Exhibits.]

Q. (By Mr. Christie): Mr. Kice, you testified that the Coleman four-foot exchanger or economizer is provided with a ventilator header plate shown by the holes which his Honor asked you about, and which are about three-quarters of an inch in diameter at the base.

A. Yes, sir. [438]

Q. Why didn't you construct a 3-foot economizer with a ventilated header plate?

A. I think I pointed out in my testimony earlier that this air going up the outside was not necessary to the performance of our unit; that we simply used it—we simply provided it as being helpful, but not essential.

The Court: The question is why didn't you put them in the 3-foot economizer? Is there any reason?

The Witness: There's no particular reason to have them there, sir.

The Court: Is the 3-foot economizer less expensive, a less expensive device?

The Witness: Well, the overall device is less expensive.

The Court: Economy in manufacture to omit those holes?

The Witness: Economy in the tooling cost.

The Court: Is that the answer as to why they are omitted?

(Testimony of Jack Kice.)

The Witness: Frankly, I don't know of any other reason.

Q. (By Mr. Christie): Now, when you have a solid header plate as you have in the 3-foot economizer, you have a dead air space behind the lower box, do you not, unless there is a means for that air to rise in the space back of the lower box?

A. No. We do not have a dead space behind the lower box in any of our units.

Q. Where does that air that comes behind the lower box go then, in the case of the 3-foot economizer? [439]

A. It would pass out through the grilles marked 9 and 10, I believe, at the sides of the heater shell.

Q. And that is the only place that air could possibly go?

A. No. It would be possible for air to go up the edges of each side of the mounting brackets, because it is only $3\frac{1}{2}$ inches thick. But, in other words, if it were a 4-inch or $3\frac{3}{4}$ or $3\frac{5}{8}$, there would be a little space along there. It is not important whether it goes up or not.

Q. Does any of that air get into the economizer, into the jacket of the economizer and come out the upper grille?

A. I would say that any air that could get through there would be inconsequential leakage. We do not hermetically seal the unit.

Q. You testified that the air, some of the air that comes up the back, comes out of the opening of the grilles marked 9 and 10 on Plaintiff's Ex-

(Testimony of Jack Kice.)

hibit 24-A. You have also testified that there is some leakage from the lower, from behind the lower box in the Coleman installation, into the economizer, have you not?

A. I have testified there could be some leakage, but not necessarily.

Q. Now, have you any idea what the cross-section of the leakage path from the back and sides of the Coleman furnace is into the economizer, as compared with the cross-section [440] provided by the grilles, 9 and 10?

A. I would say that it is quite small. It is covered quite adequately in the report that was prepared for this case by the Foundation for Industrial Research.

Q. Now, would you say that if the cross-section outlet of the area or passageway which permits air to travel up the back into the economizer was of the same order of magnitude as the cross-sectional area provided by 9 and 10 louvres, that this leakage that you spoke about would be inconsequential?

Q. Would you repeat that, please?

Mr. Christie: Would you read that question, please, to the witness?

(Question read.)

The Witness: I think that the relative areas have very little to do—the relative amounts of leakage, since we in one case were comparing a grille area against the area of a long channel, the channel being something like 4 feet in length, and it may have a great deal of roughness or it could be

(Testimony of Jack Kice.)

smooth. But even at its smoothest we indicate an inconsequential leakage; even where we used glass as the back wall, to find out what would happen under the smoothest possible situation for that channel, we found the amount of leakage was inconsequential. So I will answer your question yes, it would be inconsequential. [441]

Q. (By Mr. Christie): Even though the cross-sectional areas of the two conduits were of the same order of magnitude?

A. In the first place, they are not of the same order of magnitude. And the areas have little or nothing to do with the amount of flow.

Q. What are their relative orders of magnitude, if you know?

A. It depends on the installation, sir.

Q. Now, Mr. Kice, I'd like to direct your attention, if you will for a moment, to Defendant's Exhibit Z; and particularly to the series of dotted arrows which you have shown on this drawing. I believe you testified that you prepared this drawing.

A. Yes, sir.

Q. Now, I will mark the arrows that I have in mind with the initials X, Y, Z, A, and B and C.

Now, Mr. Kice, were not those arrows intended to show air traveling up the back and sides of the Coleman lower box, and into the economizer or heater exchanger?

A. Those dotted arrows indicate the inconsequential leakage to which I have been referring, and the air--it will be noted there are two paths

(Testimony of Jack Kice.)

that those arrows follow; one going around the outside of the economizer——

Q. Would you indicate which arrows you have in mind by [442] referring to the initials I have made on them? A. Arrow C.

Q. Now, isn't this intended to indicate the gas going up back of the wall in the 4-foot economizer with the ventilated header plate?

A. The arrows that I have attempted to show there is the air that would leak past the mounting bracket, due to the fact that it is a little narrower than the average wall space in which it is located.

Q. And would this apply to the 4-foot economizer?

A. C would apply to both the 3-foot and the 4-foot economizer.

Q. Now, arrow B would also apply to both the 3- and 4-foot economizers?

A. No, it would only apply to the 4-foot.

Q. Why would it not apply to the 3-foot economizer, Mr. Kice?

A. I think you can observe that by comparing the construction of the 3-foot and the 4-foot economizers.

Q. Do you deny that there is gap through which gas can travel up the back of the heater into the 3-foot economizer?

A. I think I have stated before that we do not construct these things with a hermetic seal. There is a small space that is a result of needing a lip for spot welding the [443] vent pipe and the bottom

(Testimony of Jack Kice.)

of the box together. I think you have a similar lip in most any construction of this type.

Q. Now, referring to the——

A. We made this much less than normal practice, incidentally.

Q. Referring to Plaintiff's Exhibit 25-D, which is the 3-foot economizer, I will ask you to measure how wide this inconsequential space is that you testified about.

A. Well, as near as I can measure it with this rule, it is a quarter of an inch.

Q. Now, how long is that space, Mr. Kice?

A. The space would be divided into two parts, each approximately $3\frac{1}{4}$ inches by $\frac{1}{4}$. There is a sharp right angle turn which the air would have to go around, too, which is an important restriction which anyone familiar with air flow realizes.

Q. Now, you testified, Mr. Kice, that the Coleman economizer is essentially a ventilated flue pipe and is the same size as ventilated flue pipes. I am now speaking of the interior cross-section of the economizer, what we have referred to previously as the heater exchanger. Is that correct? I am referring in particular, Mr. Kice, to the cross-sectional area of the inner tube of the economizer.

A. The inner tube of the economizer fits a 4-inch oval Metalbestos, which is standard flue pipe for this size of [444] heater. It is the same size as our Model 60, before we built economizers.

Q. Could you identify for me the trade designation of the pipe that we are talking about so that

(Testimony of Jack Kice.)

we will know exactly what you mean? I am talking about the flue pipe to which this interior duct of the economizer is connected.

A. Well, the general designation used by the trade is a Type B vent, 4-inch oval—Type B vent.

Q. And are those all the same, so there won't be any confusion about terminology here?

A. No, there are slight differences in the size, exact shape of the various Type B vents. But they are practically the same.

Q. Practically the same?

A. We use an adapter to permit fitting the different shapes.

Q. Mr. Kice, what does the word "economize" mean to you? A. Saving something.

Q. And what would you call an "economizer"?

A. Something that saves something.

Q. Now, didn't you testify that the Coleman Company uses the word "economizer" when they just mean a ventilated flue pipe, and that the device is not intended to save any heat? [445]

A. No, I didn't say that.

Q. You are sure of that? What did you say, Mr. Kice?

A. I said that the heat that was saved was a plus factor in the operation of the unit. We did not depend on it to make the unit operate.

Q. But you do call it an economizer?

A. Yes, sir.

Q. A saver of heat? Correct?

A. That is correct.

(Testimony of Jack Kice.)

Q. And you would also agree with me, would you not, Mr. Kice, that there is heat exchange from the flue gases which go up through the economizer, both the 3- and 4-foot models, and the outer jackets, and the gas in the outer jackets of those models?

The Court: I will assume that if they weren't designed to save that heat, it would be sent out the roof. I think I am correct in that. It would go up the chimney, so to speak.

Mr. Christie: I asked the question because there seemed to be an implication in the witness' direct examination——

The Court: As I understand, these devices have a double purpose. One is to cause that heat to flow away from the wall, flow away from the device; and two, to have it flow out into the room and do some good; salvage it, so to speak.

Is that an unfair statement of the purpose, in your view?

Mr. Christie: That seems to be a fair statement.

Mr. Lyon: I think we can all agree with that, your Honor.

The Court: We are concerned here with methods of doing it.

Mr. Lyon: That is entirely the point in the case.

Q. (By Mr. Christie): Now, you testified that you observed the tests that Mr. Henry Landsberg made?

A. Yes, sir.

Q. And you further testified, Mr. Kice, that the SO₂ supply was adjusted at some time in the duration of that work.

A. Yes, sir.

(Testimony of Jack Kice.)

Q. Can you tell us, Mr. Kice, when you observed these adjustments, and who made them?

A. I am afraid I can't relate the time to the test for the simple reason that the test didn't make sense to me at all. I wasn't able to determine what they were trying to prove when the tests were originally run. It wasn't until they were nearly finished that I began to have an idea that they were using the supply there to attempt to prove anything about the flow. It was not explained to us what they were——

Q. Is it a fair summary of your testimony on this point then, Mr. Kice, to say that you didn't understand what was going on while the tests were being run?

A. You sure could. I still don't understand what they were trying to prove; or where it has a bearing on the case.

Q. You testified that you saw the gas adjusted. Who [447] adjusted the gas? I am now speaking of the SO₂ bottle.

A. I believe the adjustment was by both Mr. Landsberg and his assistant from time to time.

Q. Have you any idea how many times these adjustments were made?

A. I said it was more than once but I wouldn't say whether it was two times or six times. It was somewhere in between that number.

Q. Were these adjustments made while the data that Mr. Landsberg has testified to here was in course of collection?

(Testimony of Jack Kice.)

A. They were made during the tests. As I have explained, I can't relate the time to the operation of the Titrilog because it wasn't clear to me. Any adjustment made during the test would indicate, as far as I am concerned, that there was not a standard measured amount of flow in there on which these figures here are purported to be dependent.

Q. But you can't testify that you can relate the time of the adjustment to the collection of the data, is that a fair summary of your testimony?

A. I said that. * * * * *

WARREN BLAZIER

called as a witness by and on behalf of the defendant, having been first duly sworn, was examined and testified as follows:

The Clerk: Will you state your name, please?

The Witness: Warren Blazier.

Mr. Lyon: At this time I ask the clerk to mark the deposition of Warren Blazier, Jr., taken on January 5, 1954, as Defendant's next in evidence. And this is offered in evidence pursuant to the stipulation that we need not go over this matter again at this time; that both sides would accept the testimony as taken at the deposition.

Mr. Christie: That is correct, your Honor.

The Court: Very well. The deposition is received as Exhibit AI, Mr. Clerk? [449]

The Clerk: There is Q and R. Are you going to use those numbers?

Mr. Lyon: We will mark this as Q.

(Testimony of Warren Blazier.)

The Court: Exhibit Q is the witness' deposition. Are there any exhibits attached to it?

Mr. Lyon: And there is a book of exhibits attached thereto, which I will ask be marked as Exhibit R, and I offer it in evidence.

The Court: Very well. Both exhibits Q and R are received in evidence.

Mr. Christie: Correct, your Honor.

(The documents referred to were marked Defendant's Exhibits Q and R, and were received in evidence.)

[See page 543 for Exhibit Q.]

[See Book of Exhibits for Exhibit R.]

Mr. Lyon: Now, your Honor, I will not spend the time of the court to qualify Mr. Blazier, because he is qualified in this deposition, his qualifications are set forth.

The Court: Very well.

Mr. Lyon: Unless the court desires them to be read at this time.

I think Mr. Christie will agree that his qualifications have been set forth. Whether they are sufficient or not, I don't ask him to agree.

Mr. Christie: I will agree that whatever he said at Wichita in the course of his deposition, he said.

The Court: He will be deemed to have resaid here, is [450] that it?

Mr. Christie: And is deemed to have resaid here.

The Court: Very well, gentlemen.

(Testimony of Warren Blazier.)

Direct Examination

Q. (By Mr. Lyon): Mr. Blazier, are you familiar with the practice of evaluating the data, and getting the data from one of these furnaces for various A.G.A. tests as to efficiency?

A. Yes.

The Court: That is American Gas Association?

Mr. Lyon: Yes.

Q. (By Mr. Lyon): Have you actually made, personally, such tests on some of these heaters?

A. Personally I have been present when the tests were made. They were made as a part of work done under my supervision.

Q. Were you present at the taking of the deposition of Mr. Landsberg? A. Yes, I was.

Q. Was the test that was produced there in any way recognized by any of these testing authorities of these heaters?

A. I saw no relationship between it and any other specified testing procedure. [451]

The Court: Mr. Lyon, before you proceed further, was it your intention that Exhibit Q should be a part of the testimony of this witness here?

Mr. Lyon: Yes, your Honor.

The Court: Preceding the testimony that he is now giving?

Mr. Lyon: That's right. It is merely that I don't think that we need to repeat the testimony. It would take the better part of a day.

The Court: Do you wish it deemed copied into the record here at this juncture?

(Testimony of Warren Blazier.)

Mr. Lyon: I would rather have it marked just as an exhibit.

The Court: Very well.

Mr. Lyon: That the witness has so testified.

The Court: Anyway, it will be incorporated by reference at this point.

Mr. Lyon: Yes.

The Court: Is that agreeable, gentlemen?

Mr. Christie: That is agreeable, your Honor.

The Court: Very well.

Q. (By Mr. Lyon): What is one of the important things in determining the operation of one of these heaters, Mr. Blazier?

A. Well, I would say that one of the most important [452] things that you would have to establish would be that your testing procedure would be done entirely independently of the internal functions of the heater itself. In other words, your testing equipment and your monitoring techniques would have to be handled in such a manner as to not disturb the normal operating functions of the equipment.

Q. In other words, you couldn't set up false drafts and suction in the machine and get a true test of how that machine operated, could you?

A. You would not be able to evaluate the results, no. There would be too many indeterminate factors.

Q. Would you tell the court some of these things that would destroy the operation of one of these furnaces that entered into Mr. Landsberg's test, point them out?

(Testimony of Warren Blazier.)

A. Well, one of the first things that I would have been concerned about, if I had been evaluating the system, was the tunnel placed on the front of the unit. It is difficult to say just how the presence of that tunnel would affect the normal passage of air into the unit, that is, the combustion air, as well as the air for circulation. I felt that the rated conditions of the heater should be established, the specified rated conditions, before any evaluation was done, so that the unit was being tested in accordance with its normal configuration in an actual service application.

Q. That wasn't done? [453]

A. It was not done, no.

The second objection that I had to the technique that I witnessed was the sampling of air contained between the back of the lower box, which I believe is Exhibit 24, and the glass wall of the test set-up. My objection was the sampling of the air contained in that passage by a suction process. This set up an indeterminate condition in the back of the unit so that it would be difficult to determine to what extent the suction pressure or the volume of sample being drawn from that passage affected that channel.

In other words, this was not a normal operating situation for the unit.

Q. What is the normal stack differential pressure? I mean by that the pressure that causes the gas to flow up through the radiator?

A. I think in gas appliances it is in the neighborhood of two to three-hundredths inches of water.

(Testimony of Warren Blazier.)

Q. Could the pressure differential in the back on the outside, for example, of the box on Exhibit 24, the draft pressure, be greater than that?

A. It certainly shouldn't.

Q. What would happen if it was greater?

A. Well, many peculiar things might happen. You could have the flue gas itself taking that path for discharge, rather than the path up through the center of the radiator. [454]

Q. Do you mean it would suck it down and up around the back of the furnace?

A. If that pressure differential was there, it could very easily do that.

The Court: Does that same differential exist in the space between the ribs on the back of the box, the ribs and the wall?

The Witness: Under normal operating conditions I would say no, your Honor.

Q. (By Mr. Lyon): It can't without sucking the combustion fumes up there, can it?

A. No.

Q. You heard Mr. Landsberg state that there was a suction of two inches. How many times is that of the maximum pressure in the radiator?

A. If we speak of the range of draft in the radiator as varying from two-hundredths to three-hundredths of an inch of water, a two-inch suction pressure at the back of the test area would represent a pressure between 70 and 100 times greater than the normal stack draft.

(Testimony of Warren Blazier.)

Q. In other words, you might be, and probably were, drawing gases from the radiator with such a pressure?

A. I would seriously consider that as something that could occur, yes.

Q. Now, how can you explain the fact, or can you explain [455] the fact that Mr. Landsberg had a lower concentration at the entrance to the heater of SO_2 than he had at points behind the heater, and yet there was only one opening, can you explain that?

A. That was the point that bothered me, one of the things that bothered me about the entire test that I witnessed. There was a great inconsistency in the data that was being taken, and I saw no way for a higher concentration of gas to exist at a point different from that at the source.

One could speculate as to how this could occur, but it certainly is the type of data which is unreliable and undependable.

Q. Wouldn't the only possible way have been to suck some of the combustion gases into that back chamber?

A. That would have been one possibility to consider, since the Titrilog was also sensitive to mercaptans and things of that nature that could be present.

Q. Would you give us any other samples of faulty technique in taking this test?

A. Well, throughout the test I was also concerned by the fact that no attempt was made to

(Testimony of Warren Blazier.)

continuously monitor the rate of injection of the sample gas into the tunnel in front of the unit, in front of the heater.

Q. What happened about the monitoring of the gas, can you tell us some of that? [456]

A. Well, as I say, I was quite confused, because it seemed to me that during the process of the test there were occasionally changes in the valve settings of the sample gas that was being injected into the unit, and it was difficult for me to tell whether this was a part of the test or just what was actually happening. The whole test was difficult for me to follow in its consistency.

In tests involving concentration products and things of that nature, the value of concentration comparisons is only good if you can be certain that your conditions are the same throughout the extent of the test. And the lack of any actual monitoring of the injection of sample gas, plus the obvious variation in the consistency of the data from point to point made me seriously question the technique in itself.

Q. As an expert and engineer in this field of gas appliances, would you say that the tests of Mr. Landsberg had any justification in their final results?

A. I would say that they were of absolutely no value.

Q. Now, how do you determine the quantities of gases flowing in these furnaces? What techniques have you used?

(Testimony of Warren Blazier.)

Mr. Christie: Your Honor, I believe that is going to be repetitious of the testimony that we have already put in via the exhibit. I had no intention of agreeing to that if we were going to get a mere repetition.

Mr. Lyon: I am sorry. I recall that is in the deposition, [457] and I will strike the question.

The Court: Very well.

Q. (By Mr. Lyon): Now, in the patent in suit, Mr. Blazier, there is a statement that they must paint the inner radiator or flue pipe black—

Mr. Christie: Would you identify the place you are speaking about, Mr. Lyon, so that we may follow you?

Mr. Lyon: I am not asking him, your Honor, about the patent. I just want to find out why.

That is in column 5, line 22, down to 26.

Q. (By Mr. Lyon): What is the object of painting a radiator or flue pipe black?

A. Well, to increase its radiation.

Q. I call your attention to the fact that in the defendant's structures, both the three-foot and the four-foot economizer, they are painted aluminum; what is the reason for that?

A. Well, it is my opinion that the reason would be to keep the outer jacket of the economizer at a lower temperature than it would run if the flue pipe were painted black. [458]

* * * * *

(Testimony of Warren Blazier.)

Cross Examination

Q. (By Mr. Christie): Mr. Blazier, have you ever run any tests with a Titrilog?

A. No, sir.

Q. Have you ever seen a Titrilog, except during the taking of the Landsberg deposition?

A. No.

Q. So your familiarity with a Titrilog is completely restricted to what you saw on that occasion?

A. As an instrument for measuring SO_2 , yes.

Q. As an instrument for other purposes have you ever used it?

A. No, sir.

Q. I noticed——

Perhaps we can dispose of this by stipulation. Mr. Lyon, will you stipulate that when you referred to the black surface of the radiator, with reference to column 5 of the patent, that you were talking about the black surface on the radiator 15?

The Court: The patent itself so states.

Mr. Lyon: That's right, your Honor.

The Court: That is the radiator in the lower box.

Mr. Christie: Yes. And in your question to the witness you did not refer to that radiator—— [459]

Mr. Lyon: I made an error, your Honor. I should have referred to the other radiator.

The Court: Your answers would apply wherever "black" was used, I suppose?

The Witness: That is correct.

Q. (By Mr. Christie): Mr. Blazier, I hand you a copy of Defendant's Exhibit V and call your attention to the passage beginning on the bottom

(Testimony of Warren Blazier.)
of page 35. At this point Mr. Lyon was examining Mr. Landsberg, and he said:

“I have a question for the witness. Does titanium dioxide in any way affect this instrument you have been using, to your knowledge?

“A. No. We can prove that if you like.

“Mr. Lyon: Let’s take a test. I would like to see what happens.

“Mr. Hoegh: At what point are you sampling, Mr. Landsberg?

“A. No. 4, I believe it was. No, No. 3.

“Mr. Lyon: If it had any real effect it would bounce it hard with that amount of concentration.

“A. Yes.

“Mr. Lyon: All right. Give it some smoke.

“A. I see smoke going right by the point of sampling.

“Mr. Lyon: It has substantially no effect that [460] I can observe or you can on your machine.

“A. Right.”

Now, did you observe this incident?

A. Yes, I was present.

Q. Do you agree that the smoke went right by the sampling point?

A. It was injected with quite a velocity. It was a squeeze on a bulb, and there was a puff of smoke that did pass by. [461]

Q. And it went right by the sampling point?

A. Yes.

Q. So that it was not sucked in at the sampling point?

(Testimony of Warren Blazier.)

A. Well, that was hard to tell. I mean, there was a big puff that was squeezed into the back of this chamber that we have been talking about, and the purpose of the test was to determine whether titanium dioxide affected the readings of the Titrilog. And it was my observation that this puff of smoke was simply injected. I didn't make any particular observation as to whether there was anything sucked into the Titrilog or not.

Q. But you will agree that the titanium dioxide was injected right at the bottom of the furnace?

A. I don't recall that. I don't recall at which point that was injected. He says here——

Q. Reading from the record?

A. Line 23. This answer: "No. 4 I believe it was. No, No. 3."

If that is referring to the point of injection of the titanium tetrachloride, then this would be at a point, as I recall, quite a ways up on the back of the box. So I don't really recall just where that was. I remember the test was taking place. And my attention at the time was directed to the Titrilog. I was waiting to see if there was a large shift in its reading. [462]

Mr. Christie: That completes our cross examination on this witness, your Honor.

The Court: Mr. Blazier, in your opinion is the Titrilog itself an instrument that does what it purports to do, if properly operated?

The Witness: Yes, your Honor. I have absolutely no objection to the Titrilog as an instrument.

(Testimony of Warren Blazier.)

I think, as a matter of fact, it's an instrument that our organization is considering purchasing.

The objection that I had was to the application of the Titrilog to this particular testing procedure. The instrument itself is a very good instrument for analyzing sulphur concentration.

The Court: Now, Mr. Landsberg made use of a certain formula. Do you have any criticism of his algebra in that matter?

The Witness: No. Mr. Landsberg's formula was satisfactory as far as the derivation of how a concentration of products can be used. My objection was to the method of collecting the data that was put into the formula. The test procedure was such that you had no assurance that the data itself was reliable.

The Court: According to his computation, as I recall, 57 per cent of the outlet of the upper vent to the economizer was sulphur gas. Now, did you observe the test? [463]

The Witness: Yes, I observed the test. I would like to explain one thing here at this point, if I might. We ran tests in my organization to evaluate this quantity of flow that seems to be the subject of all the conversation, the flow up the back. And the method we used we felt was one which was independent of the operation of the unit itself. And the value which we obtained was a value which, based upon the total delivery of the air from the economizer grille, that the total volume of air that was moving up the back of the unit, starting up

(Testimony of Warren Blazier.)

the back, was less than 4 per cent—or, rather, it was around 4 per cent of the total flow that was coming out at the grille.

The Court: You made a test to determine the source of the air that was coming out of the grille?

The Witness: That is correct. We tried to determine the contribution of the air up the back to the total coming out of the grille. And the air coming up the back has several paths that it takes. We observed this visually as well as experimentally. And so that the 4 per cent which we measured was that of the starting quantity of gas that started up the back, but part of that 4 per cent took other paths and into the economizer. So that our conclusions from the work that we did were that the contribution of the leakage flow up the back of the unit to the total delivery of the economizer was less than 4 per cent of that total delivery, and we cross [464] checked these figures by two different methods; the two methods being entirely independent of each other. One was a chemical method of approach and the other was an engineering method of approach. Both methods were based upon measurements and analysis external to the——

The Court: Well, are those methods described in your deposition?

The Witness: I believe they are in the deposition, yes. [465]

* * * * *

GEORGE PETOFF

called as a witness by and on behalf of the defendant, having been first duly sworn, was examined and testified as follows:

The Clerk: Will you state your name, please?

The Witness: George Petoff.

The Clerk: How do you spell it, please?

The Witness: P-e-t-o-f-f.

Direct Examination

Q. (By Mr. Lyon): Where do you reside, Mr. Petoff.

A. I reside at 620 Woodlong Boulevard, in Wichita, Kansas.

Q. And what is your occupation?

A. I am a mechanical engineer.

Q. By whom are you employed?

A. I am employed by the University of Wichita Foundation For Industrial Research.

Q. Could you give some of your scholastic background, [469] Mr. Petoff?

A. I was graduated as a mechanical engineer from Rensselaer Polytechnic Institute, Troy, New York, in January, 1951.

Q. What degrees did you receive, if any?

A. I received a Bachelor of Mechanical Engineering degree.

Q. By whom have you been employed since that time?

A. I was employed by Chance-Vought Aircraft in Dallas, Texas for two years as test engineer in the structures test lab, and upon leaving Chance-

(Testimony of George Petoff.)

Vought I accepted a position with the University of Wichita Foundation for Industrial Research as a research engineer.

Q. What are your duties at that institution?

A. My duties are to perform research in the mechanical engineering division, research on any projects that might come into the particular division of the research foundation.

Q. What projects have you worked on for that research foundation?

A. I have worked on the evaluation of air distribution systems, air outlets for air distribution systems, and have certified tests on wall heaters for the Coleman Company who had placed a project with the Research Foundation for that particular purpose.

Q. In other words, the Coleman Company employed the [470] Foundation and you happened to be the man that did the work for the Foundation?

A. That is correct, sir, they employed us as an organization.

Q. Are you familiar with the usual tests, efficiency, mode of operation, of the heaters that have been introduced in evidence here?

A. Yes, sir, I am. [471]

Q. Now, have you made any tests or comparisons of the various Coleman heaters?

A. Yes. I have tested the Coleman Model 67, 68 and 69 heaters.

Q. What were you testing them for?

A. To establish the operational characteristics

(Testimony of George Petoff.)

under normal operating conditions; and, well, those operational characteristics would include efficiency and input and output radiants.

Q. Have you tested any of the Holly furnaces?

A. I have performed some tests on the Holly furnaces.

Q. Are you familiar with the operation of both these furnaces? A. Yes, I am.

Q. Now, referring to Exhibit Z, there is up the back of the Coleman furnace, on the outside of the furnace and between the wall, there is always a space, is there not? A. Yes, sir.

Q. Now, does some of the air that is in that space leak into the economizer?

A. Yes, some of that leaks into the economizer, and a portion of it finds its way around the flange of the economizer and continues on up the wall between the outside of the economizer and the inside of the stud space.

Q. Now, have you made any tests of the Coleman heater [472] in which you sealed that space so that no air could flow up the back?

A. Yes, I have.

Q. And what were the results of that test?

A. I don't recall the exact figures, but I believe that the difference was in the order of one or two—no. A very small percentage. I don't remember the exact per cent difference in the economizer flow. It was pretty small.

The Court: By the "economizer flow," do you mean the volume of air emitted from the upper—

(Testimony of George Petoff.)

The Witness: Yes, your Honor, vent.

The Court: Upper grille?

The Witness: Upper grille.

Mr. Lyon: Will you mark this for identification?

(The exhibit referred to was marked as Defendant's Exhibit AP for identification.)

Q. (By Mr. Lyon): Have you made any official reports concerning these tests that you refer to?

A. With the stud space blocked?

Q. Yes. In comparison with it open the ordinary way. A. I have.

Q. I hand you a document which is marked Exhibit AP for identification, and ask you what that document is?

A. This document is a summation of test information that I have obtained on Coleman Model 67 heaters to be presented [473] at a steering committee meeting at the Coleman Company on November 16, 1953.

Q. Was this report made in accordance with this project that you stated the Institute was hired to do? A. Yes, it was.

Mr. Lyon: I will offer that document as Defendant's Exhibit next in order, as Defendant's Exhibit AP.

Mr. Christie: As long as it may be understood it is purely for the purpose of illustrating the witness' testimony. Your Honor, this was an ex parte test. We didn't see it. We have no knowledge of it and I think that ought to be made clear.

(Testimony of George Petoff.)

Mr. Lyon: I agree it was made by this witness, but I think it is material testimony.

The Court: Offered as part of his testimony on direct examination, is that it?

Mr. Lyon: That is right.

The Court: Very well. Any objection to that?

Mr. Christie: No objection.

The Court: It may be received in evidence.

(The exhibit referred to was received in evidence and marked as Defendant's Exhibit AP.)

[See Book of Exhibits.]

Q. (By Mr. Lyon): Now, would you explain to the court what this report is, a quick summary of what this report is, Exhibit AP? [474]

A. All right. I would like to outline the test procedure and the test—the test points or the particular information we were looking for, first.

Q. If you would, please.

A. We were asked to determine how much, if any, of the total economizer flow could be contributed to the stud space, the rear stud space behind the Model 67 heater.

Q. Was this with a 4-foot or 3-foot economizer?

A. This was with the 4-foot economizer.

Our preliminary smoke test showed that particular flow up the rear stud space was not measurable by ordinary methods; not measurable by any methods which would assume any space in the rear of the heater, since that might upset the normal operating conditions there.

The Foundation devised a smoke generator com-

(Testimony of George Petoff.)

posed of a length of pipe, some cloth stuffing and fuel oil. This was ignited and tied to an air supply so that the amount of smoke could always be turned on and off at the convenience of the operator so that the room wouldn't get completely filled with smoke if we didn't need it. This particular type of smoke was introduced at the bottom of a Coleman Model 67 heater. [475]

Q. Through the ordinary intake of the heater?

A. That is correct, through the ordinary intake.

And the puffs of smoke up the back were observed, and an even flow of smoke up the back was observed. This smoke took a pretty definite pattern along the center of the back of the heater. It started out covering nearly the full width of the stud space at the bottom—I will make that, it did cover the whole width at the bottom, and converted to a fairly small width at the junction of the economizer and the lower heater in the Model 67.

The smoke was readily observable, and it was possible for me to time this smoke travel in a given distance along the back, and to determine the exact area through which it was flowing. I was able to combine the area with the velocity to obtain an air flow in terms of cubic feet per minute.

Q. You had a glass wall, did you not, in this tests so that you could see into this space?

A. That is correct. That wall served actually a dual purpose. It was the smoothest possible wall we could use, and also transparent so we could observe our results.

(Testimony of George Petoff.)

This particular test showed that approximately 85/100 of a cubic foot a minute of air was flowing up behind Model 67 lower heater, and the total discharge of the economizer was measured by two separate unrelated methods and determined to be approximately 20 cubic feet per minute. Therefore, the [476] amount of flow going up behind the heater contributed a ratio of 85/100 to 20, or a percentage of about four and a quarter of the total flow out of the economizer.

Actually this figure is not correct, because some of the flow going up the back also spilled out over the flange in the four-foot economizer, that is Plaintiff's Exhibit 24-B, and went on up the stud space into the attic. Therefore the percentage was somewhat less than the four and a quarter per cent that I just mentioned.

The Court: What is the percentage?

The Witness: Percentage of the total flow contributed by——

The Court: Out of the upper——

The Witness: Vent, yes, your Honor.

Q. (By Mr. Lyon): What does this report show as to the effect of the over-all efficiency of the Coleman 67 heater with the four-foot economizer, with the back sealed off so that no air could come up, in comparison with the efficiency of the same——

A. We were unable to detect on our instruments any difference in efficiency, in heater efficiency, with the stud space blocked or unblocked.

(Testimony of George Petoff.)

Q. Now, were those tests made in the same way that they make the efficiency tests for the A.G.A.?

A. Yes, they were. [477]

Q. Could you give the exact figures with it unblocked and with it blocked from that report?

A. The efficiency was measured twice with the rear stud space unblocked. The first test showed an efficiency of $71\frac{1}{2}$ per cent, the second showed $72\frac{1}{2}$ per cent. The efficiency with the rear stud space blocked was $72\frac{1}{2}$ per cent.

Q. Now, have you made any tests of the Holly furnace with the rear stud space blocked?

A. Yes, I have.

Q. And what were the results of those tests?

A. I remember the particular test that I conducted revealed an increase in the temperature of discharged air at the top vent of the Holly heater with the rear stud space blocked, over that which would occur there under unblocked conditions.

Q. Did you have an increase in temperature in the blocked condition on the Coleman heater in the tests you made? A. No, I did not.

Q. Have you made a report setting forth the facts that you determined on these tests?

A. Yes, I have.

Mr. Lyon: Will you mark this please.

Mr. Christie: We have the same comments to make with respect to these reports, your Honor. They cover work which [478] was conducted ex parte. Plaintiff didn't witness the tests. And we

(Testimony of George Petoff.)

suggest that they be admitted simply as illustrative of the present witness' testimony.

The Court: They are part of the testimony on direct, I take it, when they are offered.

Are you offering this last exhibit?

Mr. Lyon: As soon as I identify it, your Honor. I haven't as yet.

Q. (By Mr. Lyon): I hand you a document marked AQ and ask you if that is the report that you just testified to. A. Yes, it is.

Mr. Lyon: I will offer that in evidence, your Honor.

The Court: Received in evidence as Exhibit AQ—is that it, Mr. Clerk.

The Clerk: Yes, AQ, your Honor.

(The document referred to, marked Defendant's Exhibit AQ, for identification, was received in evidence.) [See Book of Exhibits.]

Q. (By Mr. Lyon): Has the Foundation for Industrial Research been asked to run—secure data on the difference between the Coleman four-foot and the Coleman three-foot?

A. Yes, I conducted those tests.

Q. You conducted those tests? A. Yes.

Q. Did you write a report on it?

A. I did. [479]

Mr. Lyon: Will you mark that as the next one, please?

(The document referred to was marked Defendant's Exhibit AR, for identification.)

Q. (By Mr. Lyon): What did you find out in

(Testimony of George Petoff.)

the comparison between these two types of economizers?

A. I could not detect an appreciable difference in the operating characteristics of the two different systems, one with the stud space blocked and the other with the stud space free.

Q. I will hand you a document marked AR and ask you if that is the report you just referred to?

A. It is.

Q. I notice that the title of this report is Special Report On Wall Heater Investigation—Comparison of Coleman No. 67-3101 and No. 68-A 3101; could you explain what those numbers are?

A. Yes. The 67-3101 is the four-foot economizer, similar to Plaintiff's Exhibit 24-B, and the 68-A 3101 is similar to Plaintiff's Exhibit 25-A.

Q. Those are the factory control numbers that they use on these? A. Yes.

The Court: One is the four-foot economizer and the other is the three-foot, I take it?

The Witness: Yes. [480]

Mr. Lyon: I will offer this as Defendant's Exhibit AR.

The Court: Received in evidence.

(The document, marked Defendant's Exhibit AR, for identification, was received in evidence.)

[See Book of Exhibits.]

Q. (By Mr. Lyon): From your study and work in compiling these reports of Coleman heaters, Mr. Petoff, what is your opinion as to the value, in the

(Testimony of George Petoff.)

operation of Coleman heaters, of air circulating outside of the lower box, and between the wall and the box?

A. Would you repeat that, please?

The Court: Please read it, Mr. Reporter.

(The question was read by the reporter.)

The Court: If you have an opinion.

The Witness: I would say that the air moving up behind the lower box and rear wall has a very small effect on the operation of the economizer, as compared with the air that can be drawn in from outside of the heater itself through the upper grilles.

Q. (By Mr. Lyon): By those upper grilles you mean 7 and 8 on Exhibit 24—

A. The grilles numbered 7 and 8, yes.

Q. On Exhibit 24-A?

A. Yes. And my test results show that this contribution of the rear stud space is only four per cent or slightly over four per cent of the total amount in the economizer. [481]

Q. What is the effect on the efficiency?

A. There was no detectable effect on the efficiency.

Mr. Lyon: That is all, your Honor. [482]

Cross Examination

Q. (By Mr. Christie): Mr. Petoff, you testified, I believe, that you got out of college in 1951.

A. That is correct.

Q. And you worked for Chance-Vought Aircraft for a couple of years? A. Yes.

(Testimony of George Petoff.)

Q. Did that involve any work on wall heaters?

A. No, it didn't.

Q. Since you have been with the Wichita Research Foundation, have you worked on other projects that had no concern with wall heaters?

A. I have worked on other projects. I wouldn't say they had no concern with wall heaters. I have always worked with some type of heating equipment since I have joined the Research Foundation.

Q. So that you have worked continuously on wall heaters of the type that is involved in the suit here since you went with the Wichita Research Foundation? A. No.

Q. What percentage of your total time would you have been employed on wall heaters of the type here in suit?

A. I would say just a little better than half.

Q. So your total experience on wall heaters of the type [483] we are talking about is probably about a year; would this be a fair summation of your testimony?

A. No. My total experience, I suppose, lumped into one sum, might be one year. But——

Q. Spread over two years?

A. Well, say—yes, wall heaters as such, I would say two years.

Q. Wall heaters, all wall heaters, including wall heaters of other than this type; and about one year on the type that we are talking about here?

A. No. I can't say that it's only one year on

(Testimony of George Petoff.)

this type. I started working on these a good deal longer than a year ago.

Q. Now, you testified just now that you had worked for the Wichita Research Foundation for about two years—— A. All right.

Q. ——and that a good deal of that time had been used on heating equipment; is that correct?

A. Yes.

Q. Now, you testified that part of that heating equipment was not wall heaters; isn't that right?

A. Yes.

Q. Do you know how much or what percentage of your total time was involved in other types of heating equipment? A. About half. [484]

Q. About half? A. Yes.

Q. So now we have half of two years working on wall heaters, is that correct? A. Yes.

Q. And that according to my mathematics is about a year total time.

A. I would say that I have worked on wall heaters and other types of heating equipment for two years each.

Q. But you have only been employed by the Wichita Research Foundation for two years——

A. Two years.

Q. ——isn't that correct? A. Yes.

Q. And you testified that you didn't do anything with wall heaters when you were with Chance-Vought, is that correct? A. Yes, sir.

Q. All right.

A. Well, I don't completely forget about all the

(Testimony of George Petoff.)

work I have done with a particular—on a particular test just because I happen to work on a different type of test. If I started two years ago working with a wall heater, then for two years now I have been concerned with wall heaters. And if I worked with a furnace two years ago, then for two years I [485] have been concerned with a furnace.

Q. Does this mean that you worry about your work, Mr. Petoff?

A. Occasionally I certainly do.

Q. Mr. Petoff, you have testified that you ran tests with the Coleman heaters equipped with the 3-foot and 4-foot economizers with this space blocked off at the back, is that correct?

A. Yes.

Q. Now, did you block off the space between the studs and the lower box on the sides?

A. No, I did not.

Q. So that there was still room for air to go up from behind around the lower box into the economizer, isn't that correct?

A. Not absolutely. On the 4-foot economizer there are four vent holes in the base plate of that economizer, and that air is just as free to go up the stud space between the economizer and the wall as it would be to go into the economizer.

Q. Now, you also testified that you ran tests on the Holly heater. By that I am referring to Exhibits 20, 20-A, 20-B, seriatim. Is that correct?

A. Yes.

(Testimony of George Petoff.)

Q. And you did that with the wall space behind the box [486] blocked? A. Yes.

Q. Now, did you block the space back of the sides? A. No.

Q. On that heater? A. No.

Q. So that there was still room for air to go up around the outside of the box into the heater exchanger, isn't that correct? A. Yes.

Q. Now, when you blocked the back of the wall space behind the 3-foot—behind the Coleman furnace equipped with the 3-foot economizer, where did you put that block?

A. I don't recall doing it with a 3-foot economizer.

Q. You didn't do it with a 3-foot economizer?

A. No.

Q. You have testified, have you not, that you compared the 3-foot and the 4-foot economizers with respect to this very function?

A. No. I have testified that I have compared the operation of the Coleman 4-foot economizer with stud space blocked and stud space free.

Q. You never did this with the 3-foot economizer? A. I don't recall doing it.

Q. So you don't know what happens to the temperatures [487] behind the lower box when you block off its communication with the economizer, isn't that correct?

A. Would you repeat that, please?

Mr. Christie: Would you read the question?

(Question read.)

(Testimony of George Petoff.)

The Witness: I have never measured those temperatures.

Q. (By Mr. Christie): You never measured them? A. No.

Q. You don't know whether that temperature would go up or down?

A. I assume it would go up.

Q. Have you any idea how much it might go up?

A. No.

Q. Now, you testified that you made certain smoke tests in which you observed a pattern of black smoke—— A. Yes.

Q. ——which you let go up behind the lower box of the Coleman furnace equipped with the 4-foot economizer, isn't that correct?

A. Yes.

Q. And then you observed puffs of smoke that you released behind the lower box and timed these puffs of smoke?

A. Actually those weren't released as puffs. Those were—smoke was introduced into the system from the normal air entrance in a steady stream. The smoke was ejected in a [488] path 90 degrees to the normal entrance so that the suction created by the burner and the flue action of the heater was the only force bringing that smoke into the heater itself. And those weren't injected as puffs, but there were swirls in that smoke that were easily detectible and measurable as far as a velocity was concerned.

Q. Now, what sort of smoke did you use?

(Testimony of George Petoff.)

A. I used an oil smoke.

Q. Now, were those oil smoke particles heavier than air?

A. I never saw a deposit, a carbon deposit, in any of the components in the furnaces where I used the oil smoke, so I would assume, no, that those particles were not heavier than air.

Q. How did this smoke differ from ordinary oil smoke?

A. I couldn't see any difference in smoke. It was a dense black smoke.

Q. Now, within your personal experience, haven't you found that particles of oil smoke settle out?

A. Yes.

Q. Now, so that these particles then would be heavier than air, isn't that correct?

A. They can be, depending on the temperature of the smoke and the air.

Q. Now, did you make any correction in your calculation [489] of velocity for the fact that smoke particles tend to settle out?

A. I did not. In order to be on the conservative side, the smoke itself was a good deal lighter than air, as evidenced by a rise in the smoke when it was near the floor.

Q. What do we mean by "smoke," Mr. Petoff? Do you mean the solid particles, or do you mean the gas, or do you mean the mixture of solid particles and gas?

A. I mean the mixture.

Q. Now I am talking about the mixture, too.

(Testimony of George Petoff.)

And isn't it true that the solid particles present in that smoke were heavier than the gas in which the solid particles were suspended?

A. I am not sure. If that were true, I would have seen a carbon deposit on the components of the furnace. And I saw no such deposits. I can't answer.

Q. None at all?

A. I would say no, that it would not be heavier than air.

Q. How about carbon tetrachloride, isn't it heavier than air? A. I don't know.

Q. Have you ever observed carbon tetrachloride settling out in your heater tests?

A. No, sir, I have not. I never used carbon tetrachloride. [490]

Q. I am sorry. I mean titanium tetrachloride and titanium dioxide, which develops as a fuel when you use titanium tetrachloride.

A. I haven't noticed any pronounced settling out of the titanium dioxide and hydrochloric acid. I have seen streaks along the glass back panel of our test wall that were attributed to the titanium tetrachloride smoke method. So there was settling out there.

Q. Now, you said that you detected a smoke pattern going up the back of the heater which did not include the total space around the sides and back of the lower box, is that correct?

A. Yes. I didn't see smoke in those other parts that you just mentioned.

(Testimony of George Petoff.)

Q. Now, in your computations you assumed, did you not, that all of the air was traveling in the space in which you observed the smoke pattern?

A. Yes.

Q. And you assumed that no air and no movement was going in the balance of the space, is that correct?

A. That is correct, yes.

Q. So that if there was air movement around, up the sides of the heater and in the space where you didn't observe the black smoke, the so-called smoke pattern, your calculations [491] would be wrong, isn't that correct?

A. If there were flow there, it would be wrong.

Q. Yes.

A. Yes. That is right. They would be wrong if there is flow there.

Q. And your entire testimony would then be worth very little?

A. That is not for me to decide.

Q. If carbon particles in smoke are heavier than gas in which they are included at the same temperature so that they tend to settle out, what you would observe by observing the smoke would be a net velocity, would it not, of the gas, minus the falling velocity of the smoke particles?

A. I believe maybe the net would go in the other direction. [492]

Q. Do you mean particles fall up, Mr. Petoff?

A. The smoke being lighter than air, yes, then particles would fall up.

Q. I think you misunderstood my question. I

(Testimony of George Petoff.)

say, let us assume that the smoke particles and the gas are at the same temperature, that is a fair assumption, is it not?

A. No. This smoke was produced by very hot flame, and the smoke started with a good deal higher temperature than the air going into the heater, and was therefore lighter than the air going back up.

Q. Tell me what you mean by the smoke. Are you talking about—

A. The mixture.

Q. The mixture?

A. Yes.

Q. I am talking about the gas that is in that mixture and the solid particles that are in that mixture. Let us assume that those solid particles are heavier than the gas, isn't it true, then, that they would tend to fall out?

A. Yes..

Q. Now, isn't it also true that if you watched a smoke particle or a body of smoke under those conditions, that what you would see as the smoke rose is the difference between the total velocity of the smoke and the velocity of the particles as they were falling out? [493]

A. Yes, it would.

Q. Did you make any corrections in your calculations for any such possibility?

A. No, I didn't.

Q. You were present, were you not, at the tests which Mr. Hoegh and I attended at Wichita?

A. Yes, I was there.

Q. Did you use the oil method that you have testified to this morning at those tests?

A. No, sir, we did not.

(Testimony of George Petoff.)

Q. Were we present, Mr. Hoegh or myself or anybody representing the plaintiff, during the tests about which you have testified this morning?

A. No.

Q. You testified that you measured the total output of the upper grille? A. Yes.

Q. During the tests about which you talked this morning. A. Yes.

Q. Is that correct? A. That is correct.

Q. Now, during the tests which were observed by the plaintiff's representatives in Wichita, did you make any such tests to show what the total volumetric output of the upper [494] grille of the economizer was?

A. I believe we offered to do that, Mr. Christie, and were told not to.

Q. By whom?

A. I don't recall. I remember we had made the offer, and received a reply to the effect that it wasn't necessary at that time.

Q. Did I tell you that?

A. I don't remember.

Q. Did any representative of the plaintiff tell you to do that? A. I don't remember.

Q. Well, who did, then?

A. I do know that we were asked not to do it.

Q. Do you think the Coleman Company asked you not to do it? A. No.

Q. You don't remember who told you not to do it?

Mr. Lyon: Your Honor, that matter that he is

(Testimony of George Petoff.)

now asking about is in the deposition. If he cares to read it he will find out who told him not to.

The Court: Which deposition do you refer to?

Mr. Lyon: To the deposition of Mr. Blazier, where the offer was made to make these tests and plaintiff's counsel stated that they didn't need the tests made. [495]

The Court: Referring to Exhibit Q?

Mr. Lyon: I would have to look at the exhibit to see, your Honor. Mr. Petoff has my list of exhibits.

The Witness: That is Q, Mr. Lyon.

Mr. Lyon: Thank you.

Mr. Christie: May I have Exhibit R, Mr. Clerk?

Q. (By Mr. Christie): Now, Mr. Petoff, I call your attention to a diagram marked "Drawn by GLP," which appears in Exhibit R; it is further identified as "Diagram of smoke pattern along glass back wall of Coleman Model No. 67 heater"; are those your initials? **A.** Yes, they are.

Q. Did you make this drawing?

A. I made the original from which this was copied, yes.

Q. And is this black pattern, this black portion up the center of the drawing, what you mean by the smoke pattern?

A. That is my representation of what I saw along the back of that heater.

Q. And it is your contention, and it was your assumption in the calculations that you made, that the only gas movement up the back of the heater

(Testimony of George Petoff.)

was in the portion that is marked in the dark, is that correct? A. Approximately, yes.

Q. How wide would that be in terms of inches?

A. I don't recall right now what that width was.

Q. I call your attention, Mr. Petoff, to another drawing which is on a piece of graph paper. Again I see the initials GLP, this is in Exhibit R—is that your drawing?

A. Yes, that is a copy of an original I had made. Those are not my penciled notations.

Q. I understand that.

These pencil notations, your Honor, were put on, I believe, during the depositions at Wichita.

But the notation "Outline of smoke pattern" is yours, is it not?

A. Yes, it is.

Q. I notice at the bottom, at a point marked A on the drawing, that you marked it 5.6 inches, is that correct? A. Yes.

Q. And I notice that at the top adjacent the point marked B you marked 3.2 inches?

A. Yes.

Q. This was your estimate of the width of the smoke pattern, was it not?

A. At those two points?

Q. Yes. A. Yes, it was.

Q. And you assumed that it tapered in a straight line, which you have marked "Outline of Smoke Pattern," between those two points? [497]

A. I observed this particular type of smoke pattern, and those straight lines would not be the

(Testimony of George Petoff.)

actual outline of the smoke, they would be the envelope around the smoke, that would be the farthest out the smoke could be.

Q. In your work, Mr. Petoff, did you not consider—and in your calculations about which you have testified this morning—did you not consider that this tapering portion which you have marked “Outline of Smoke Pattern” was, in effect, a chimney, and that this was the only place in which gas movement occurs behind the heater?

A. Yes.

Q. And that, again, would be a rather narrow space 5.6 inches at the bottom and 3.2 inches at the top?

A. Yes.

Q. Mr. Petoff, these tests that you have described this morning are the basis of Mr. Blazier’s testimony yesterday in which he said that only four per cent of the gas coming out of the upper grille of the Coleman economizer was contributed by gas going up the back and sides of the heater, is that correct?

A. I believe so.

Mr. Christie: That is all, your Honor.

The Court: Did you make a test of the relative efficiency of the Holly heater with the air from the back and sides of the lower box blocked off? [498]

The Witness: No, your Honor, I did not compare the efficiencies.

The Court: Do you attach any significance to the fact, as I understood it, that the smoke traveling up the back of the lower box of the Coleman

(Testimony of George Petoff.)

heater came to an apex or a near apex at about the junction of the lower box with the economizer?

The Witness: Yes, your Honor. That apex showed that the warmest spot on the back of the heater, which contributed to a chimney action, was right at about that point, right at the junction of the lower and the upper boxes. * * * * *

Redirect Examination

Q. (By Mr. Lyon): I believe you testified that when you blocked the back of the Holly heater the temperature in the secondary heater rose appreciably? A. Yes.

Q. Now, why didn't you measure the efficiency, then, of that heater like you did with the Coleman?

A. I don't recall the exact reason why the efficiency wasn't measured at that time. I believe that there was more [499] significance attached to the temperature rise in the structure surrounding the secondary heat exchanger and the delivery air of the secondary heat exchanger, and just did not conduct a——

Q. What happens to the efficiency of a heater when the stack temperature rises sharply?

A. If stack temperature rises sharply the heater efficiency will decrease. There is just not as much opportunity for heat transfer from that stack.

The Court: Why would that be so?

The Witness: The higher the temperature of a given radiator the greater the heat transfer, and in the surrounding structure if the temperature of

(Testimony of George Petoff.)

that structure is high, then the temperature difference on which radiation works will be less.

The Court: I understand that, but I understood you to say that the higher the temperature of the economizer the less heat would radiate from it.

The Witness: The higher the temperature of the economizer, then the greater the flue loss, the heat loss in the flue. Actually the heat transfer will be higher, but the high temperature in the flue itself means that heat is lost up that flue.

The Court: When you spoke of the increased temperature in the Holly heater, in the economizer of the Holly heater, when the circulation of the air from behind the heater and [500] along the sides of the lower box was blocked off, were you speaking of flue temperature, or the economizer?

The Witness: Flue temperature would necessarily have to be higher in order for that air to be warmer. So then the efficiency would be lower.

The Court: Was any attempt made to measure the temperature, increase in temperature, if any, behind the lower box of the Holly heater, when the passage of air was blocked off?

The Witness: I recall measuring the outside of the glass wall, but not the inside, your Honor, and I did notice a slight increase in temperature when the rear stud space behind the Holly heater was blocked.

The Court: Did you make that same observation with respect to the Coleman heater?

(Testimony of George Petoff.)

The Witness: Yes, just a qualitative type of test. I did not actually measure it quantitatively.

The Court: Did you make any note of a comparison in that regard between the two, the Coleman and the Holly?

The Witness: A comparison——

The Court: With regard to how the heat temperature increased behind—the temperature of the glass behind the lower box?

The Witness: No, I did not, your Honor.

Mr. Lyon: I have nothing further, your Honor.

Recross Examination

Q. (By Mr. Christie): You mentioned that the temperature in the flue would necessarily increase if the stud space was blocked off, I believe you said.

A. No, I said that if the air surrounding the flue were warmer—if a given operating condition were established in the heater, and suddenly the ventilation space around the flue, the air in that ventilation space were heated to a greater degree than it had been during the normal operating condition, then the flue temperature necessarily must be higher.

Q. Did you measure that flue temperature?

A. No, I did not.

The Court: That is to say that if there is one pipe around another pipe, and the outside pipe is hot, the inside pipe will be hotter, is that it?

The Witness: If the outside one was hotter than

(Testimony of George Petoff.)

it was during the normal operating condition, then the inside one will be hotter, also, yes, sir.

The Court: Does heat flow more rapidly from a hot object to a very cold object than it does from a hot object to a lukewarm object?

The Witness: Yes, your Honor, the heat transfer by radiation is a function of a fourth power.

The Court: Is it correct to say that heat flows?

The Witness: Yes.

The Court: Is that correct?

The Witness: Yes. Function of the fourth power, the absolute temperatures of the two different objects, so that an increase in the colder object would necessarily cut down or reduce the heat transfer from the warmer object.

The Court: That is the rate of transfer?

The Witness: The rate, yes. * * * * * [503]

The Court: Do you offer it in evidence?

Mr. Hoegh: Plaintiff's Exhibit 16 in evidence.

The Court: It may be received in evidence.

(The document referred to was received in evidence and marked as Plaintiff's Exhibit No. 16.) [See page 517.]

Mr. Hoegh: The other letter is dated February 23, 1954, addressed to Mr. Stanley Johnson, president of the Holly Manufacturing Company.

The Court: Is it stipulated that that letter was sent by Mr. Hoegh on or about the date it bears to the addressee therein named? [504]

Mr. Lyon: If Mr. Hoegh so states, I will so stipulate.

Mr. Hoegh: I do, your Honor.

This letter to Mr. Johnson points out that I took steps to call Mr. Lyon with regard to this article that appeared to inform him of the action we were taking to get a retraction published.

The Court: Exhibit 15 for identification?

Mr. Hoegh: 15 for identification, yes, sir.

The Court: It may be received in evidence.

(The document referred to was received in evidence and marked as Plaintiff's Exhibit No. 15.)

[See page 517.]

* * * * *

Mr. Hoegh: I want to read into the record at this time some very short portions from the testimony of Mr. Coleman on page 28 of the deposition taken in Wichita, Kansas, on April 6, 7 and 8, Plaintiff's Exhibit 9 for identification, beginning the eighth line up from the bottom of the page.

Mr. Christie is questioning Mr. Coleman.

"Q. Did you have what is known in the industry as a 'hot wall' problem? [505]

"A. I can't answer that. I don't know what you mean. You are always fighting temperatures in any heating device."

Mr. Lyon: What page is this, please?

Mr. Hoegh: 27.

Mr. Lyon: You said 28.

Mr. Hoegh: Page 27, Mr. Reporter; eight lines from the bottom.

"Q. I mean the wall above the wall heater, did that give you trouble, get too hot?

"A. I assume that is probably correct because it is a traditional problem."

I would like to turn now to the deposition of Mr. Kice on page 115 of the deposition, four lines from the bottom. [506]

The Court: Is that the same Exhibit 9 for identification?

Mr. Hoegh: Yes, sir.

Mr. Christie was examining Mr. Kice:

"Q. Have you had anything to do with the testing of wall heaters?"

I will correct that, your Honor. Mr. Hoegh is examining Mr. Kice.

"Q. Have you had anything to do with the testing of wall heaters?"

"A. Not in the laboratory.

"Q. Have you set up test requirements; have you told people that you would like to have shown?"

"A. Only in connection with the patent litigation we are now in.

"Q. Would that be here in the plant as well as other places?"

"A. No, only at the Foundation for Industrial Research.

"Q. What instructions did you give the Foundation when you wished to have certain tests made, referring to the tests on Coleman and Holly wall heaters?"

"A. It seemed to me that the matter to be tested was the one pertaining to the amount of [507] leakage that occurred in connection with this ventilated stack which we were able to set up tests

that would determine the degree of leakage, and in order to measure it we first had to make some rather unusual preparations to determine the techniques and procedure for measuring the small quantities involved. It wasn't possible to measure this with the normal techniques we had in our own laboratory—we used a kind of a tracer arrangement by carbon dioxide.”

I ended at the seventh line from the bottom on page 116.

I would like to turn now to page 117, the eighth line from the top:

“Q. Did you decide the type of wall construction that would be used?

“A. Yes, it was my decision.

“Q. Did that include the type of lathing that was used?

“A. We set up what we felt would give the worst possible situation and the best possible situation from this leakage standpoint.”

* * * * * [508]

PAUL HARVEY HAMMOND

called as a witness by and on behalf of the plaintiff, in rebuttal, having been first duly sworn, was examined and testified as follows:

The Clerk: Please state your name.

The Witness: Paul Harvey Hammond.

The Clerk: H-a-m-m-o-n-d?

The Witness: That is correct, sir.

Direct Examination

Q. (By Mr. Christie): Mr. Hammond, will you state your age, residence?

A. I am thirty-nine years of age and reside at 1135 Linda Vista in Pasadena.

Q. What is your present occupation?

A. Vice-president and controller, Holly Manufacturing Company.

Q. How long have you had that position?

A. The title of controller was added in May of this year. I had been vice-president of the company since 1947.

Q. As vice-president what have been your duties?

A. I have been generally in charge of the administrative affairs of the company dealing with accounting, budgets, [510] what we term control reports, which consist of the internal reports for control of our own company operations, material procurement, and I have, also, in a staff capacity, determined the level of operations for the company, that consisting of evaluating our availability of material, plant capacity, man-power, financial and all of the other things that would go into determining

(Testimony of Paul Harvey Hammond.)

the volume at which we produce in evaluating our sales potential against that.

Q. Does your job include supervision of the accounting department of Holly Manufacturing Company? A. Yes, sir, it would.

Q. How long have you supervised the accounting department? A. Since 1946.

Q. Are you familiar with the accounting and sales records of the company?

A. Yes, sir, I am.

Q. Since when?

A. Since the same date, 1946.

Q. When did you first come with Holly Manufacturing Company?

A. I was employed in 1940, became secretary of the corporation when it was incorporated on December 17, 1945.

Q. Did you remain in that position until 1947?

A. That is correct, sir. [511]

Q. Would you tell me what your education is?

A. I have a Bachelor of Science degree in engineering from Caltech.

Q. When did you get that degree?

A. That was in 1936.

Q. What did you do in the interval between 1936 and 1940 when you testified you came to work for Holly Manufacturing Company?

A. I was employed by the Southern California Gas Company as a commercial representative.

Q. Are you familiar with the products of the company? A. Yes, I am. [512]

(Testimony of Paul Harvey Hammond.)

Q. I call your attention to Plaintiff's Exhibits 20, 20-A, 20-B, and ask you if you know what that is.

A. Yes, sir. That is our so-called new model wall heater, with the secondary heat exchanger.

Q. Do you know when you first began manufacturing that?

A. That was first manufactured and sold in 1950.

Q. About what month, if you know?

A. August of 1950.

Q. Had Holly manufactured wall heaters prior to that time?

A. We had, but without the secondary heat exchanger.

Q. Now, do you know what happened when you introduced your new model with the secondary heat exchanger, identified by Exhibits 20, 20-A, 20-B?

A. Our volume of wall heater production, sales, orders, back log, all increased substantially in the intervening period of time.

Q. Did you continue to manufacture the old type wall heater?

A. No, that was discontinued as rapidly as we were able to stock and deliver the new model.

Q. Now, since August 1950 have you manufactured any wall heaters other than those exemplified by Plaintiff's Exhibits 20, 20-A and 20-B?

A. There was a short transition period in which we continued to produce some of the old wall heaters, but as rapidly as the new design became available, conversion was made, and by the end of that

(Testimony of Paul Harvey Hammond.)

period—by the end of 1950 we completely ceased manufacture of the old style heater.

Q. Have you made an examination of the company's records to discover the number of wall heaters that you shipped beginning in 1950 to 1954?

A. Yes, I have.

Mr. Christie: Your Honor, I have certain original records here. They are the file records of Mr. Hammond, and I would like to substitute a photostatic copy, subject to Mr. Lyon's right to examine them, and subject to error, if any appear.

The Court: Have these documents been marked for identification?

Mr. Christie: I am about to have them marked, sir, as Plaintiff's Exhibit 34-A for identification.

The Clerk: This is one exhibit?

Mr. Christie: This is one exhibit.

(The documents referred to were marked Plaintiff's Exhibit No. 34-A for identification.)

* * * * * [514]

Q. (By Mr. Christie): Mr. Hammond, I hand you a group of papers which have been marked Plaintiff's Exhibit No. 34 for identification, and I ask you to tell me what they are, and your familiarity with them.

A. These records are what we term our "Status Report." You will notice there is a change in title for the year 1954 where we refer to it as a Monthly Model Report." But essentially these records show our production, orders, shipment and back log on a weekly basis, and then cumulatively [515] for the

(Testimony of Paul Harvey Hammond.)

year. And the particular reports which I have are the ones for the last week of the year. Therefore, a cumulative report showing our total back log and shipments for the year.

Q. Are these records kept in the regular course of business of the Holly Manufacturing Company?

A. Yes, sir, they are.

Q. Are you familiar with them?

A. Yes, I am.

Q. Have they been prepared under your supervision and control? A. They have been.

Mr. Christie: I offer them in evidence, your Honor, as Plaintiff's Exhibit No. 34-A.

* * * * * [516]

The Court: His statement is this: You set out to keep a record—I don't care what you call it; it is a record. Now, are you offering the complete record of the record which is being offered?

The Witness: Yes, I am. [517]

The Court: Complete unit?

The Witness: That is correct.

The Court: Its integrity has not been disturbed by dividing it——

The Witness: No, sir. This is a record we have maintained quite independently from any consideration of this case for a number of years; in fact, they date back prior to the years that are offered here. They are complete in that they show units.

The Court: Is it the ordinary course of the business of your company to keep such a record?

The Witness: It is, sir.

(Testimony of Paul Harvey Hammond.)

The Court: How long has that been so?

The Witness: I would believe that this has been kept at least since 1946, sir.

The Court: And is it accurately kept?

The Witness: Very accurately kept.

The Court: How is it compiled?

The Witness: It is compiled from various sources. We have our production records. They are used to compile the production figures shown here. The shipment figures come from the actual shipping form which we use in shipping merchandise out to the customer. The order portion comes from records maintained in the sales department, which is a journal entry, in effect, of orders as received. And then [518] the balance of the form is essentially computed from that data to show cumulative figures, as well as specific totals for periods of time. The particular record we are offering here is a cumulative record for the years in question.

* * * * *

The Court: The objection is overruled. The document will be received in evidence as Exhibit 34-A.

(The document referred to was received in evidence and marked as Plaintiff's Exhibit 34-A.)

[See pages 529-534.]

* * * * * [519]

Mr. Christie: May I have this second sheet marked for identification as Plaintiff's Exhibit next in order. I believe it is 35.

The Clerk: 35.

(Testimony of Paul Harvey Hammond.)

(The document referred to was marked Plaintiff's Exhibit 35, for identification.)

Q. (By Mr. Christie): Mr. Hammond, I hand you a document, which has been marked for identification as Plaintiff's Exhibit 35, and ask you to tell me what it is.

A. This is a computation sheet illustrating how we prepared a figure for total wall heater orders by units, received in each of the years from 1950 through '54.

Q. Where did you get the figures that you used in those computations?

A. These figures are derived directly from the reports [523] which have just been entered as evidence.

Q. Would you identify the exhibit, please?

A. That is the status reports which I have here.

The Court: Exhibit 34-A?

The Witness: Exhibit 34-A.

Q. (By Mr. Christie): Did you compile these figures yourself?

A. They were done under my direction, and I have checked them.

Q. You personally have checked them?

A. Yes.

Mr. Christie: I ask that this exhibit, which the witness has just testified about, be placed in evidence as Plaintiff's Exhibit 35.

The Court: Is there objection?

Mr. Lyon: Only that it isn't a complete record.

The Court: Is Exhibit 35 for identification, a

(Testimony of Paul Harvey Hammond.)

record kept in the ordinary course of business of the plaintiff?

The Witness: No, sir, it is not. This was a record that we made to clarify information appearing on the record which is normally kept in business. We have similar records to this, but not in this particular form.

Mr. Christie: Your Honor, this was done to save time. The witness could go through these records and take off from them—— [524]

The Court: What are “these records”?

Mr. Christie: Plaintiff’s Exhibit 34-A.

The Court: Was Plaintiff’s Exhibit 35 compiled from the data which appears in Plaintiff’s Exhibit 34-A?

The Witness: Yes, sir, in an attempt to clarify certain of the information shown thereon. I can run through the exact type of computation that we have on here, if it would help in illustrating the point.

Mr. Christie: Your Honor, I can take him through the computations based upon that, but it would take far more of the court’s time than is necessary. This was in an effort to expedite the proceeding.

The Court: What is the purpose of Exhibit 35?

Mr. Christie: It is to show, sir, the number of units of the heaters of the preceding model and of the model which we say is constructed in accordance with the invention, which were actually shipped from Holly’s plant, and constituted their actual out-of-the-plant production that went into

(Testimony of Paul Harvey Hammond.)

industry year after year beginning in the year 1950, when the model was introduced.

Mr. Lyon: If Your Honor please, since he has withdrawn the statement that they are records of the company, I have no objection to it going into evidence, with the understanding that this is merely what the witness would testify he was asked orally to set forth what Exhibit 34-A shows. [525]

The Court: Very well. For that purpose Exhibit 35, for identification, will be received in evidence.

(The document referred to, marked Plaintiff's Exhibit 35, for identification, was received in evidence.)

[See page 535.]

Mr. Lyon: Originally they made the statement that they were records of the company.

Mr. Christie: I don't believe any such statement was made.

The Court: Just direct your remarks to the court, Mr. Christie.

Mr. Christie: I am sorry, sir.

I ask that the document which has just been testified to, be marked as Plaintiff's Exhibit 35.

The Court: It has been received.

Mr. Christie: I ask that another document entitled Computation Holly Wall Heater Shipment Units be marked for identification as Plaintiff's Exhibit 36.

The Court: It may be so marked.

(The document referred to was marked Plaintiff's Exhibit 36, for identification.)

(Testimony of Paul Harvey Hammond.)

Q. (By Mr. Christie): Mr. Hammond, I ask you to identify the document which I have had marked for identification as Plaintiff's Exhibit 36; will you tell me what it is, who made it, and where the numbers appearing thereon were derived?

Mr. Lyon: Pardon me. I think we will save time. Isn't this a similar document to 35, just another compilation from 34-A?

Mr. Christie: Correct.

The Court: Is that correct?

Mr. Christie: Yes.

The Witness: It is identical with 35, except that it shows shipments.

Mr. Lyon: I have no objection with that understanding of what the exhibit is.

The Court: It is offered as part of the testimony of the witness.

Mr. Lyon: Of the witness, yes.

Mr. Christie: It is offered as part of the testimony of the witness, your Honor.

The Court: Very well. Received in evidence.

(The document referred to, marked Plaintiff's Exhibit 36, for identification, was received in evidence.)

[See page 535.]

Mr. Christie: In order to save time, then, I would like to offer the next one directly into evidence as Plaintiff's Exhibit No. 37. It is entitled "Computation Holly Wall Heater Back-log Units," with the same understanding.

(Testimony of Paul Harvey Hammond.)

Mr. Lyon: With the same understanding as Exhibits 35 and 36.

The Court: Was Exhibit 37, for identification, compiled [527] from Exhibit 34-A, Mr. Hammond?

The Witness: Yes, it was.

The Court: Received in evidence.

(The document referred to, marked Plaintiff's Exhibit 37, for identification, was received in evidence.)

[See page 536.]

Mr. Christie: To save time, your Honor, I would like to do the same thing with three more exhibits, which are simply graphs of the values which Mr. Hammond arrived at by the computations represented by Exhibits 35, 36, and 37.

Mr. Lyon: In other words, he would testify that this represents his testimony?

Mr. Christie: Exactly.

Mr. Lyon: I have no objection under that offer.

The Court: Have these documents been marked?

Mr. Christie: I would ask that the one entitled "Holly Wall Heater Orders" be marked as Plaintiff's Exhibit next in order. I believe it is 38.

The Clerk: 38.

The Court: It will be received in evidence as part of the witness' testimony, pursuant to the agreement.

Mr. Christie: The next graph——

The Court: The last one will be Exhibit 38, Mr. Clerk?

The Clerk: Yes, your Honor, 38.

(Testimony of Paul Harvey Hammond.)

(The document referred to, marked Plaintiff's Exhibit 38, for identification, was received in evidence.)

[See page 537.]

Mr. Christie: The next one offered in evidence as Plaintiff's Exhibit 39 is entitled, "Holly Wall Heater Shipments."

Mr. Lyon: I gather, 38, 39, and the next one, which will be 40, are all under this same agreement?

Mr. Christie: That is correct.

The Court: Exhibit 39, for identification, is received in evidence.

(The document referred to, marked Plaintiff's Exhibit 39, for identification, was received in evidence.)

[See page 538.]

Mr. Christie: The next one entitled "Holly Wall Heater Unfilled Order Back-log Units at End of Year," a graph, I ask be marked in evidence as Plaintiff's Exhibit 40.

The Court: Pursuant to the agreement it will be received.

(The document referred to, marked Plaintiff's Exhibit 40, for identification, was received in evidence.)

[See page 539.]

The Court: As I understand it, then, Mr. Hammond, Exhibit 38 is a graph representing the figures on Exhibit 35, Exhibit 39 is a graph representing the figures on Exhibit 36, and Exhibit 40

(Testimony of Paul Harvey Hammond.)

is a graph representing the figures on Exhibit 37?

I am sorry, I thought you had the exhibits before you. [529] Do you understand the question?

The Witness: Yes, I do, your Honor.

Exhibit 40 is unfilled orders and would pertain to Exhibit 36; Exhibit 39 on shipments follows Exhibit 35; and Exhibit 38 on orders would follow Exhibit 36.

The Court: The first one, Exhibit 40, the first one you mentioned, on the back-log, would follow Exhibit 37, would it not?

The Witness: 40 is Exhibit 37, yes, sir.

The Court: Very well.

Mr. Hoegh: Your Honor, if I may interrupt for a moment. We have a document here which we thought was Exhibit 34, and the clerk's listing didn't have it, so we started out with the company records of Holly this morning as Exhibit 34. It is on page 205 of the transcript.

The Court: You mean there had been previously—yes, according to my notes a sketch of an experimental heater with two louvres for circulation had previously been marked in evidence as Exhibit 34.

Mr. Hoegh: Yes, I had that, also.

Mr. Lyon: Yes, that's right.

Mr. Christie: Your Honor, could we avoid the confusion by having the exhibit, which is the records that Mr. Hammond has testified to as Exhibit 34, identified as 34-A? [530]

The Court: Is there any objection?

Mr. Lyon: No objection.

(Testimony of Paul Harvey Hammond.)

The Court: So ordered.

Mr. Lyon: And where Mr. Hammond has referred to an Exhibit 34, or Mr. Christie, or your Honor, or myself, this morning, the reporter should change it to 34-A?

The Court: Is that agreed?

Mr. Christie: That is agreed, your Honor.

The Court: So ordered.

(The changes ordered by the court of "34" to "34-A" were physically made by the court reporters.)

Q. (By Mr. Christie): Mr. Hammond, I call your attention now to Plaintiff's Exhibit 39 entitled, "Holly Wall Heater Shipments," and ask you if you prepared this graph, and if so, where you got the figures that are on the graph, and what the graph shows.

The Court: As I understood it, it was agreed that he prepared Exhibit 39 from the figures on Exhibit 36.

Mr. Christie: 34-A, sir.

The Court: And the figures on 36 came from Exhibit 34-A. Is that correct?

The Witness: That is correct, your Honor.

Q. (By Mr. Christie): Will you explain what Exhibit 39 shows?

A. I think Exhibit 39 shows the very marked increase in [531] our wall heater shipments, in 1950, when they were predominantly of the old style heater our total shipments were some 23,935, and in 1954 that figure has risen to 61,406.

(Testimony of Paul Harvey Hammond.)

The Court: Aren't these documents intended to speak for themselves?

The Witness: Yes, they really were.

Q. (By Mr. Christie): What would you say with respect to the showing on Plaintiff's Exhibit 38?

A. That one referring to back-log, I think again indicates the tremendous expansion of our wall heater business. That back-log increasing from——

The Court: Does Exhibit 38 refer to back-log?

Mr. Christie: 38, according to my notes, refers to orders.

Mr. Lyon: Your Honor, I thought that these exhibits were put in for the purpose of eliminating the necessity of his testifying.

The Court: Is there any occasion to go over it, Mr. Christie?

Mr. Christie: I was simply asking one question.

The Court: Don't they speak for themselves? I haven't examined the documents, but I assume that you can argue from them.

Mr. Christie: They speak for themselves.

Mr. Lyon: At least I can understand them.

Mr. Christie: Very well.

I would like to have marked in evidence as a group a series of documents from the Bureau of Census of the United States Government. The first one is entitled, "Heating and Cooking Equipment (Except Electric) 1951," and particularly Table 2 of that exhibit, as Plaintiff's Exhibit 41.

The Court: Is there any objection?

(Testimony of Paul Harvey Hammond.)

Mr. Lyon: No objection.

The Court: Is it stipulated to be genuine and in all respects what it purports to be?

Mr. Lyon: I have no idea, but I will accept it if he states they are.

Mr. Christie: I just want the one sheet, but we could put in evidence the entire document so that the court can see it is what it purports to be.

Mr. Lyon: If you make the statement, then we can go to the one sheet, so if it comes to a case of printing this record we won't have to print the whole document.

Mr. Christie: Very well, the single sheet, then.

The Court: What sheet is offered, then?

Mr. Christie: The sheet which is entitled, "Table 2," sir. I marked it with a check mark, and the clerk has marked it.

Mr. Lyon: I will accept a photostat if you want to put [533] that in.

Mr. Christie: That may save confusion, your Honor, if we just put the photostat in.

The Court: Very well. It will be received as Plaintiff's Exhibit 41 in evidence.

(The document referred to was marked Plaintiff's Exhibit 41, and was received in evidence.)

[See Book of Exhibits.] [534]

Mr. Lyon: Why don't you just put the whole stack bound together as one exhibit?

Mr. Christie: All right. I was going to mark them and identify the separate pages, but I will offer them all.

(Testimony of Paul Harvey Hammond.)

The Court: That is a series——

Mr. Christie: A series of pages from a successive group of U.S. Census Reports discussing heating equipment.

The Court: Stipulated to be genuine in all respects what they purport to be?

Mr. Lyon: That is right.

The Court: You offer them as one exhibit? Let them all be a part of Exhibit 41.

Mr. Christie: They will be a part of Exhibit 41.

The Clerk: Is this Exhibit 41 in evidence?

The Court: Yes, in evidence pursuant to agreement.

(The exhibit referred to was received in evidence and marked as Plaintiff's Exhibit No. 41.)

[See Book of Exhibits.]

Mr. Christie: A total of 13 pages, your Honor.

Q. (By Mr. Christie): I show you a group of pages from the U.S. Census Reports, Mr. Hammond, and ask you if you are familiar with them and have used them in any computations.

The Court: This is Exhibit 41?

Mr. Christie: Exhibit 41.

The Witness: Yes, sir, we do. Exhibit 41 is a bulletin put out by the Bureau of Census of the United States Department [535] of Commerce in which they show, among other things, national wall furnace shipments. And we used that to compare our own sales as against national figures to determine the percentage of the market that we enjoy.

(Testimony of Paul Harvey Hammond.)

Mr. Christie: I ask that a sheet marked "Computation Total National Wall Heater Shipment Units" be marked as Plaintiff's Exhibit 42 in evidence, under the same stipulation that we have heretofore had, that it represents a part of his oral testimony.

Mr. Lyon: Of his oral testimony.

The Court: Does this document represent a computation made by you from Exhibit 41?

The Witness: Exhibit 42 is a compilation from Exhibit 41 made under my direction to summarize wall furnace shipments.

The Court: Received in evidence, pursuant to the agreement.

(The document referred to was received in evidence and marked as Plaintiff's Exhibit No. 42.)

[See page 541.]

Mr. Lyon: This is one, your Honor, that I don't think is very helpful that way. I can't figure out what is intended. I am going to have to have some oral testimony on this one.

The Court: You are referring to Exhibit 42?

Mr. Lyon: That's right.

Mr. Christie: I will try to make it as brief as I can, [536] your Honor.

Q. (By Mr. Christie): Now, will you explain, very briefly, Mr. Hammond, what Exhibit 42 is and how you compiled it, and what information you used?

A. Exhibit 42 is a summary of Exhibit 41, at-

(Testimony of Paul Harvey Hammond.)

tempting to show national wall furnace sales. Calling direction to certain of the specific sheets in Exhibit 41, you will note that in the year 1950 there is no segregation made on the report between oil and gas wall furnaces, so that a single figure is given. In intervening years up to 1954 there was a breakdown between oil and gas wall furnaces and then again in 1954 individual report sheets show only a summary for oil and gas wall furnaces. So in order to use a comparable index throughout the entire period here, I have combined oil and gas wall furnaces as an addition in the years 1951, '2 and '3, so that those figures would be comparable to the only available figures for the years 1950 and '54.

Q. Now, Mr. Hammond, are these figures Holly's sales or are they national sales throughout the United States?

A. These are national sales.

Q. I am referring now to Exhibits 41 and 42.

A. Yes, sir. Those are national sales as reported by the Bureau of Census.

Mr. Lyon: Might I interrupt for one question? I might clear it up if I might ask the witness one question. [537]

Mr. Christie: Certainly, your Honor.

Mr. Lyon: And that is, Exhibit 42 are the sales of all manufacturers in the United States; this doesn't relate to Holly in any way, does it?

The Witness: That is correct. I could not answer that that it would include, represents this figure as

(Testimony of Paul Harvey Hammond.)
covering between 95 and 99 per cent of the annual production.

Mr. Lyon: Thank you. That was what was unclear. I didn't know whose sales these were by the document itself. I think it now speaks for itself.

Mr. Christie: I would like to have marked in evidence as the plaintiff's exhibit next in order, which I believe is No. 43, a compilation entitled "Data Illustrating Commercial Success of New Type Holly Wall Heaters," under the stipulation that I have had previously with Mr. Lyon.

Mr. Lyon: May I see just which one this is?

Mr. Christie: The stipulation to the effect that this is part of the witness' testimony.

The Court: Is this Exhibit 43 for identification a document prepared under your direction?

The Witness: Yes, your Honor, it is.

The Court: What is the source of the data contained thereon?

The Witness: This data would summarize material shown elsewhere on Exhibit 34-B through 42, your Honor. [538]

The Court: 34-A?

Mr. Lyon: I will make the same stipulation.

The Court: 34-A?

The Witness: I believe that was the first one introduced since I was testifying.

The Court: Yes.

Mr. Lyon: I will make the same stipulation. I think this one speaks clearly for itself.

(Testimony of Paul Harvey Hammond.)

The Court: Very well. Exhibit 43 for identification will be received in evidence.

(The exhibit referred to was received in evidence and marked as Plaintiff's Exhibit No. 43.)

[See page 542.]

Q. (By Mr. Christie): Would you tell me, briefly, Mr. Hammond, referring to the first column on the left, after the column entitled "Year" where you got the figures in that column? It is entitled "Total National Wall Heater Shipment Units."

A. That came from Exhibit 41, the Bureau of Census Reports on National Shipments of all manufacturers.

Q. Now, the next column entitled "Holly Wall Heater Shipment Units," where did you get those figures?

A. Those came from our own computations. The shipments came from Exhibit 36. The orders coming from Exhibit 35. And the back log figures from Exhibit 37.

Q. Now, the next column entitled, "Per Cent of National [539] Market"?

A. The per cent of National Market is a computation showing Holly wall heater shipments in units as a percentage of national wall heater shipments in units.

Q. For each year? **A.** That is true.

Q. Now, the next column, "Orders Units," where did those figures come from?

A. I believe I jumped ahead of you there and

(Testimony of Paul Harvey Hammond.)

identified those earlier. The column you refer to came from Exhibit 35.

Q. Now, the last one, "Holly Back Log End of Year Units"?

A. Is from Exhibit 37.

Q. I notice that you have a notation with a double asterisk, being 2,705 new type balance O type opposite the 23935. Will you explain that in greater detail?

A. That is done to identify our sales of the new type heater with the secondary heater exchanger. That is referred to as new and indicates that in the year 1950 when this was first introduced on the market there were only a very small percentage of our sales on the new model heater.

Q. Is that the heater that we have identified here as Plaintiff's Exhibits 20-A, -B and -C?

A. Yes, sir, it is. [540]

Q. Now, I notice there are three asterisks under the next figure, 39,319, and I ask you if your same comment applies.

A. Yes, sir, except in this instance you will note the new type wall heater accounted for virtually all of our shipments.

Q. Now, in the years 1952, 1953 and 1954, under "Holly Wall Heater Shipment Units," I note that you have no asterisks. Do those figures represent new—the shipments of the new type of heater? And by that I mean that exemplified by Exhibits 20-A, -B and -C.

A. Yes, sir, they do.

(Testimony of Paul Harvey Hammond.)

Q. Were any old heaters manufactured and sold in that interval?

A. There were none manufactured, and any that were sold would have been negligible. There might have been one or two units that might have come back in return and exchanged, but that would have been the extent of it.

Mr. Lyon: Your Honor, we are going to have a long, hard cross examination of this witness for one reason. He has grouped all these heaters together. The very reason I objected to this original report as not being a complete report. They make two heaters now, and there has been no segregation of those heaters in this report.

Mr. Christie: I think I can clarify that, your Honor. [541]

Mr. Lyon: Then I think he had better make that distinction now. And, I don't mean that they are old type and new that he has testified to. I mean they are making two wall heaters at present; the one here and a two-room type unit which doesn't use, in any sense, the dimensions of the patent in suit. And he says here that these are all sales of heaters of Holly. So those must be included.

Q. (By Mr. Christie): You testified that these were all heaters of the type identified as 20-A—this being the so-called box, this being the shell and this being the economizer. Do you want to amplify that answer in any respect?

A. If I understand the question correctly, it should be amplified to this extent: That I have

(Testimony of Paul Harvey Hammond.)

been speaking of the new type wall heater as one utilizing the secondary heat exchanger. This, of course, is one model of the unit which uses the secondary heat exchanger. The ones which I have identified as new all do utilize that secondary heat exchanger, although there are more models than the specific one shown here.

Q. Are you familiar with this heater, the construction of the various models?

A. Reasonably so, yes, sir.

Q. Can you tell us whether or not the air for the secondary heat exchanger in each instance comes up outside the lower box and inside the wall? [542]

A. That would be true of the heaters identified as new on this report.

* * * * * [543]

Mr. Christie: Your Honor, during the noon recess, as you suggested, we have produced the heater with the outlet on both sides of the wall, this is the lower box, which I will ask the clerk to mark for identification as Plaintiff's Exhibit next in order, 44, I believe.

The Clerk: 44.

(The document referred to was marked Plaintiff's Exhibit 44, for identification.)

* * * * * [544]

JOHN H. HOLLINGSWORTH

recalled as a witness by and on behalf of the plaintiff, having been heretofore duly sworn, was examined and testified further as follows:

Direct Examination

Mr. Christie: Do you want him resworn, your Honor?

The Court: No. He has already been sworn. Have you not?

The Witness: Yes, sir.

Q. (By Mr. Christie): Mr. Hollingsworth, I call your attention to what appears to be a lower box which has been marked for identification as Plaintiff's Exhibit 44, and I ask you to tell me what it is.

A. Well, that is a dual model wall heater which distributes heat into two rooms.

Q. What secondary heat exchanger does it employ?

A. It uses the same heat exchanger as is used on the model as shown by Exhibit 20.

Q. 20-A, I believe. A. 20-A.

Q. Mr. Hollingsworth, I place Exhibit 20-A on top of Exhibit 44 for identification. Is that the way the two things go together? A. Yes. [547]

The Court: So from the exchanger the air is emitted into only one of the two rooms?

The Witness: Yes, that is correct, your Honor.

Mr. Christie: May I offer Plaintiff's Exhibit 44 in evidence, your Honor.

Mr. Lyon: No objection.

(Testimony of John H. Hollingsworth.)

The Court: It may be received in evidence.

(The exhibit referred to was received in evidence and marked as Plaintiff's Exhibit No. 44.)

Q. (By Mr. Christie): Mr. Hollingsworth, I note that Exhibit 44 consists of two parts, a white painted front portion and a rear box. Would you identify the two portions? First, the white portion that I have just removed.

A. That is the front trim or panel.

Q. What does that correspond to?

A. That corresponds with Exhibit 20-B. The other portion, which is the box containing the first radiators, is similar to, or performs the same functions as the box illustrated by Exhibit 20.

The Court: And it employs the same grille, same type of grille?

The Witness: It is basically the same panel. The only variation is in the height of the panel.

The Court: I am referring to the grilles over the outlet. [548]

The Witness: The grilles are identical, your Honor.

The Court: That is, the grilles that go with Exhibit 44 are identical with those that go with Exhibit 20, and so forth?

The Witness: With the exception of some variation in the height of that grille.

Q. (By Mr. Christie): Mr. Hollingsworth, will you tell me whether Exhibit 44 has a lower or first radiator inside the box?

(Testimony of John H. Hollingsworth.)

A. Yes, it does. It has two of them.

Q. And does it have a draft hood?

A. Yes, it does.

Mr. Lyon: If your Honor please, we will stipulate that it has all of the physical properties of Exhibit 20, except the operation of the device. That is the thing that is in question here.

Mr. Christie: Your Honor, I introduced it at Mr. Lyon's request. I was simply trying to clarify the record for him.

Mr. Lyon: I am just trying to save some time.

Mr. Christie: I will simplify the matter by withdrawing the last question and ask Mr. Hollingsworth to describe the operation of Exhibit 44.

The Court: Does it operate in the same way as Exhibit 20?

The Witness: Fundamentally the operation is the same in [549] this respect: that the same air that is supplied to the secondary heat exchanger is drawn from the floor level beneath the panel, moves up outside the box and inside the wall, into the secondary heat exchanger, and is the only source of air flow for the secondary heat exchanger.

Q. (By Mr. Christie): Does it move up the sides of the box?

A. It obviously differs in one respect; that being a dual model, the air moves up only the sides of the box, rather than the back of the box.

Mr. Christie: That is all, your Honor.

Mr. Lyon: May I cross examine just as to this item?

(Testimony of John H. Hollingsworth.)

Cross Examination

Q. (By Mr. Lyon): Mr. Hollingsworth, is this heater put together in a position, as far as the outer panel and the inner box is concerned, in the manner it would be when it was installed in a house?

The Court: Referring to Exhibit 44?

Mr. Lyon: Exhibit 44.

The Witness: Essentially in the proper manner, yes.

Q. (By Mr. Lyon): All right. Mr. Hollingsworth, on the heater marked Exhibit 20, is there any inlet, any place on the front of the economizer—I mean on the second heat exchanger? [550]

A. No, there is not. [551]

Q. Mr. Hollingsworth, I will call your attention again to Exhibit 44; how about this opening through here, which I am sticking my pencil through, isn't that an opening from the front into the secondary heat exchanger?

A. No, it is not.

Q. It is not? A. No, it is not.

Q. Why isn't it? I can stick a pencil through it and run it around.

A. Because that passage doesn't communicate with the secondary heat exchanger.

Q. Well, then, we will take a look at this passage here through which I can stick my pencil.

A. In production there can be a minor gap there because of production tolerances. That heater has been somewhat damaged on the way down, and I

(Testimony of John H. Hollingsworth.)

think that the gap there is substantially greater than might normally be expected in production. Certainly any gap that exists there is not there for any functional purpose.

Q. Now, this heater uses 45,000 B.T.U.'s, does it not? A. Yes, that is correct.

Q. And you have shut off all circulation up the back, haven't you?

A. There is no back, there is no circulation up the back. [552]

Q. That's right. So that it all must come between the studs and here (indicating)?

A. That is correct.

The Court: "Here" being the outer side wall of the lower box?

Mr. Lyon: The outer side and the studs.

Q. (By Mr. Lyon): You are putting almost a third more heat into this one?

A. Do you mean into the furnace itself?

Q. Yes. A. Yes, that is correct

Q. A third more heat into this one—strike that. Pardon me. What is the B.T.U. rating of Exhibit 20? A. 35,000.

I think a third would be a little out of line.

Q. Well, it is between a quarter and a third, then. A. All right.

Q. I wasn't sure whether it was thirty-five or twenty-five.

A. There is more input on Exhibit 44 than there is on Exhibit 20, yes.

Q. Then, frankly, this draft up the back has very

(Testimony of John H. Hollingsworth.)

little effect, you can put more heat in this one, and the same economizer, and less air goes into the secondary heat exchanger on this one, doesn't it (indicating Exhibit 44). [553]

A. No, I think a little more goes into it.

Q. It goes into this opening here, does it not?

A. Most certainly not. Up the back side.

Q. Do you put these in a wider wall?

A. No.

Q. In the same wall? A. Certainly.

Q. Then, they have the same size at the sides, don't they, as the other one?

A. There is more area on the sides of that box than there is on the other.

The Court: That box being Exhibit 44?

The Witness: Exhibit 44.

Q. (By Mr. Lyon): But it is still only a four-inch wall, the rest of this sticks out in the room, doesn't it?

A. Mr. Lyon, that conduit that comes up the side of the box consists of four sides, one of which is the outside of the lower box, the other is the stud space in the plaster that forms the wall thickness, and the other two sides are the panel side rails.

Q. Is there anything that comes up here between the wall and the heater, that comes up in the space through this outer shield? A. Yes.

Q. That is between the walls of this box and the wall? [554] A. Yes.

Q. Isn't it a fact that this is outside the wall, this whole shield is outside the wall?

(Testimony of John H. Hollingsworth.)

A. That is outside the wall, but it is a member that contains that passageway in the wall, yes.

Mr. Lyon: May I have your ruler a minute, please?

Q. (By Mr. Lyon): We have a four-inch wall here. Whereabouts in the four-inch wall would the Exhibit 20 heater go? With this ruler will you mark off where the studs would be?

A. The center line of the stud space would coincide with the center line of the major axis of the oval outlet collar at the top of Exhibit 20. I will draw a pen mark on the top of the box about in the location where that would be.

The stud, then, would be centrally located on that line, so that the stud would lay in here substantially like this (indicating), providing approximately a $\frac{3}{8}$ -inch gap back here, and projecting forward about to the point that I have marked at the edge of the top of the box. So that the portion that projects out of the wall on Exhibit 20 is identical to the portion that projects out of the wall on each side of Exhibit 44. The two are identical in that respect.

Q. Then you have no more space between the side walls of the box on that one than you do this one?

A. Yes, I do. [555]

Q. Between this wall and the box, any more area?

A. Between that wall and the box?

Q. I mean the wall and this box.

A. There is more area, the distance between the box and the wall is substantially the same, but the

(Testimony of John H. Hollingsworth.)

area of the conduit provided by that and the panel side rails is greater.

Q. Now you are adding the panel side rails. I said between the wall of this box and the wall.

A. There is no area there. That would be a distance.

Q. I mean the space here.

A. Defined by that area, that would be less—that would be the same, excuse me, on either installation.

Q. Now, you say these openings in the front panel of this Exhibit 44 are merely because of manufacturing tolerances and so forth?

A. Yes, there is about between a thirty-second and a sixteenth of an inch gap that is provided there for manufacturing tolerance purposes. Otherwise the panel would not install properly in the field.

Mr. Lyon: That is all, your Honor.

Mr. Christie: Mr. Hollingsworth, may I borrow your tape for just a moment?

Mr. Lyon: Pardon me. May I ask the witness one more question?

The Court: You may. [556]

Q. (By Mr. Lyon): Would you show me exactly where the studs come against this one? Put your hand in the position, the shape up and down.

The Court: Exhibit 44?

Mr. Lyon: In Exhibit 44.

The Witness: Again, the center of the stud coincides with the major axis of the oval outlet on the

(Testimony of John H. Hollingsworth.)

top of the first box, so that the stud splits that axis and lies substantially in this position here (indicating).

The Court: Could you mark it, Mr. Hollingsworth, in the same manner in which you marked it a few moments ago on Exhibit 20 on the top?

The Witness: Yes, your Honor. I will mark the center line of the box and the stud on the top of Exhibit 44, and I will mark the outer extremities of the wall on the top of the box of Exhibit 44.

Q. (By Mr. Lyon): Now, does the wall contact—does that stud contact this frame member?

A. The plaster on the stud contacts it, yes.

Q. Now, will you please, then, show me where there is any conduit up the side of this thing into the center, then? You have got a stud against here straight?

A. No, I haven't.

Q. You have got the plaster, then, haven't you?

A. There is a space, as I said—there is approximately [557] a half inch, five-eighths of an inch gap between the box side and the stud. That defines two sides of the conduit. The panel side rail on each side of the wall defines the remainder of the conduit. [558]

Mr. Lyon: I will get my book. The witness has stated—I am not trying not to move the local position of these two—that the stud sits right there (indicating). In other words, one wall of that stud, or the wall itself, is in that position there tight against this frame.

(Testimony of John H. Hollingsworth.)

Q. (By Mr. Lyon): Isn't that true?

A. That is correct.

Q. Doesn't that block every bit of air coming up there from getting into that stud space?

A. No, I don't believe you understand, Mr. Lyon. There is still $\frac{5}{8}$ of an inch gap here all the way down.

Q. Oh, this is out this way $\frac{5}{8}$ of an inch.

A. That is correct.

Q. What is the size of this gap on the front?

A. The size of the gap where?

Q. On the front of the heater?

A. Size of the gap—I don't understand.

Q. The one I was putting the pencil through.

A. The gap on the front of the heater? You mean this one (indicating)?

Q. Either that one or the one below it; either one of these two that go through.

A. Well, I would have to have a rule to measure that, but the gap below here——

Mr. Christie: Here is a ruler, Mr. Hollingsworth. [559]

The Witness: The gap below is a little over $\frac{3}{8}$ of an inch. The gap above, as this one happens to be sitting here right now, is $\frac{5}{32}$.

Q. (By Mr. Lyon): Isn't there—both of these gaps you have just referred to—there is one of them on each side in each room?

A. The two panels are identical on both sides.

Q. And would have the same opening on both sides?

(Testimony of John H. Hollingsworth.)

A. On the lower gap, yes. The top is not a representative gap.

Q. Then this isn't a representative heater?

A. Mr. Lyon, that heater was brought down on the truck in a hurry, and I think the top obviously has been bent. And I testified that——

Q. Oh, it is bent in this corner? Is that normally at right angles to the rest of the heater?

A. Yes, sir.

Q. Will you show us where it is bent then? We will remove the cover on Exhibit 44 and you show us where this is bent.

A. This angle is obviously not at right angle—the box has obviously been collapsed right here. If I were to straighten that up in right angle position, the position it was supposed to be, I think you would find this gap would be about a 32nd. [560]

Q. About a 32nd on each side? A. Yes.

The Court: The top gap, there between the flange on the front, top of the lower box of Exhibit 44 and the shell or trim?

The Witness: Correct.

Q. (By Mr. Lyon): Now, have you straightened it? A. No.

Q. Will you straighten it up then and then we will put it together. I want to see.

A. I don't know if I can straighten it by hand or not. The metal is probably stretched.

That's about as straight as I can get it.

Q. Now, will you assemble it? I am not going to measure that bent corner. I recognize, as the

(Testimony of John H. Hollingsworth.)

court does, that that gap made by the bent corner isn't of any importance. A. Witness complies.)

Mr. Lyon: Well, I will now call the court's attention to the gap. The opening is still there.

Q. (By Mr. Lyon): This is in the condition now it should be?

A. No, sir, not exactly. Approximately in that condition, yes.

Mr. Lyon: That is all, your Honor.

Mr. Christie: One question. [561]

Redirect Examination

Q. (By Mr. Christie): Mr. Hollingsworth, how much space is there between the studs on each side of Exhibit 44 when it is installed in the wall, and the side of the outer lower box?

A. Approximately $\frac{5}{8}$ of an inch is the space between those two.

Q. That is the conduit up inside the wall, the width of the conduit up inside of the wall?

A. That would be what I would define is the minor dimension of that conduit.

Mr. Christie: That is all, your Honor.

The Court: The space through which this air travels from the base of the lower box into the heater exchange is a space the width of the lower box and the depth of $\frac{5}{8}$ of an inch, is that right, on either side?

The Witness: The space through which the air travels up through on each side of the box is defined by the conduit that is $\frac{5}{8}$ of an inch wide in

(Testimony of John H. Hollingsworth.)

one dimension and the other dimension would be the width of the wall, plus the depth of the panel and side rails. I could not strictly define that dimension because the panel side rail has a slight slope to it.

The Court: In other words, the width of the box proper, that is, the aluminum colored portion of the lower box, plus the width of the trim, or panel?

The Witness: The closest dimension would be the width of the lower box, the aluminum portion of the lower box, times $\frac{5}{8}$ of an inch.

The Court: You don't add to that the width of the trim or the panel?

The Witness: That would be some contribution, but a cross-section of that area there would show an irregular shape at each end, and I would not consider that as being a really effective area.

The Court: I have nothing further.

Mr. Lyon: I have one question, your Honor.

Recross Examination

Q. (By Mr. Lyon): What are the tolerances to which carpenters are putting these studs together—what are the tolerances they maintain?

A. They are not too accurate. The studs are supposed to be on 16 inch centers. They can vary quite substantially. However, usually the heating installer, if the stud location is too inaccurate, will have to relocate it himself because he must attach the header plate at the base of the secondary heat exchanger, or the header plate used on any appliance for that matter, to the stud. And if the stud width is too far

(Testimony of John H. Hollingsworth.)

off one way or the other, he either can't get it in or [563] can't make proper connection. So I don't know what would be a normal tolerance.

Q. Often the space between the wall and sides of this box can be as little as an eighth of an inch?

A. No, never be that small, because you couldn't get the economizer in if it were, without disfiguring it.

Mr. Lyon: I think that is all.

Mr. Christie: One more question raised by the last.

Redirect Examination

Q. (By Mr. Christie): Mr. Hollingsworth, you spoke of the header plate as defining the minimum dimension between the studs. By the "header plate"—now referring to Exhibit 20-A—did you mean this plate here at the bottom with the two flanges?

A. Yes.

The Court: Bottom of Exhibit 20-A?

Mr. Christie: Yes.

Q. Would you measure the distance from outside of flange to outside of flange?

A. That's 14-3/16 inches.

Q. And that 14-3/16 inches would then be the minimum spacing?

A. Yes. We make that 14-3/16 because, theoretically, the distance between the studs should be 14 1/4. We allow a [564] 16th inch gap.

The Court: What is the overall dimension of Exhibit 44, the lower box?

The Witness: I believe that that is 13 inches, your Honor. Yes, 13 inches. * * * * * [565]

(Testimony of John H. Hollingsworth.)

Q. (By Mr. Christie): Mr. Hollingsworth, you have spoken about the lower furnace, which is represented by Plaintiff's Exhibit 20-A, and Exhibit 44. Does Holly have any other forms of wall heaters other than those two?

A. There are basically four models in the series, two of which are what we'd term dual models, which would be exemplified by Exhibit 44; and two which are what we term single models, which are exemplified by Exhibit 20. Those models which are exemplified by Exhibit 20 also have a smaller rear outlet grille on some versions on the upper portion of the back of the lower box, which will communicate with the room behind the lower box.

Q. What would you say with respect to the two dual models? What is the difference between them?

A. The two dual models are essentially identical, with one exception, and that is the height of the unit. There is one dual model which is more nearly the height of Exhibit 20. You will notice that Exhibit 24 is somewhat shorter than Exhibit 20.

Q. Exhibit 44?

A. Exhibit 44. That different height allows for some extra height in the first radiator to compensate for the difference [566] in input radiator.

Q. Do you have some identifying numbers?

A. Yes, we use identifying numbers. Those numbers can be changed from time to time for our own purposes of identification where we might make a tooling revision to simplify production or for some reason such as that. [567]

(Testimony of John H. Hollingsworth.)

The Court: And you make four models of wall heaters, is that correct?

The Witness: Basically.

The Court: All of them use the secondary heat exchanger?

The Witness: That is correct.

The Court: And all of them operate as you have described, the primary difference, I take it, is the difference in B.T.U. capacity, is that right?

The Witness: That is correct. * * * * *

Recross Examination

Q. (By Mr. Lyon): Do these other two models we don't see here have the openings on the front as shown in Exhibit 44?

A. The openings on the front, are you referring—

Q. The ones we have been discussing.

A. Referring to the last opening that I measured for you?

Q. Yes, these openings here (indicating).

A. Again I would repeat that normally there is a thirty-second to a sixteenth of an inch gap provided there. [568]

Q. In these other two? A. In all models.

Q. Is there one in 20?

A. Probably it could be that that is substantially less than that. That is the reason that we provide that normal gap for production tolerances. * * * * *

PAUL HARVEY HAMMOND

called as a witness by and on behalf of the plaintiff, in rebuttal, having been previously sworn, resumed the stand and testified further as follows:

Direct Examination—(Resumed)

Q. (By Mr. Christie): Mr. Hammond, over the noon hour I asked you if you could tell on the basis of figures that are already in evidence here what portion of the heaters sold by Holly in the years 1950, '51, '52, '53, and '54 have been of the single variety exemplified by Exhibit 20 and 20-A, and what proportion are the dual model exemplified by Exhibit 44; have you been able to determine that by the other figures?

Mr. Lyon: And the other two models, please.

Q. (By Mr. Christie): Referring to all models. Please distinguish between what I call the single models which are like 20, of which there are two, and the dual models of which there are also two, exemplified by 44.

A. Yes, that computation is readily available from the figures which were submitted as Exhibit 36, by referring to the various model numbers which are listed there, and then subtotaled as new style models, I added the 45 ND and 55 ND, which are the two types exemplified by Exhibit 44, and that amounts to 21 per cent of the total shipments of new style wall heaters, which were shown in Exhibit 36.

The Court: For what period?

The Witness: That would be for the five-year period covered——

(Testimony of Paul Harvey Hammond.)

Q. (By Mr. Christie): Do you have the figure year by year?

A. Yes. That can be—I haven't subtotaled it for these two models year by year. I merely ran one total.

Q. Could you do it now without too much difficulty and without taking too much time?

A. Do you want percentage figures on this?

Q. If you would, please.

A. Roughly it would be about 18 per cent in 1951, about 20 per cent in '52, about the same for '53, and 21 or 22 per cent for '54. Very little variation from year to year, [569] apparently.

Q. (By Mr. Christie): Mr. Hammond, referring now to Plaintiff's Exhibit 43, I notice that Holly wall heater shipments were 11.3 per cent of the national market in 1950, the first year in which the new models were made and sold; 19.1 in 1951; 18.8 in 1952; 14.6 in 1953; and 17.5 per cent in 1954. Will you explain, if you know, why the figure of 14.6 per cent representing the 1953 percentage is below that of other years?

A. Well, I think there were several reasons why our percentage of the national market dipped in 1953.

We, of course, had an allocation program which was in effect starting with the second quarter of 1951 and extending through the first half of 1953. That strictly limited the available material.

Q. Who imposed that allocation?

A. That was imposed by the War Production Board, Federal Government Regulations, as a re-

(Testimony of Paul Harvey Hammond.)

sult of the Korean War. And, consequently, each manufacturer of heating equipment, together with other manufacturers using critical products, had to make application to the Government for, in our case, steel, which was used, and the volume of steel which we had available to produce heaters was limited through the Government.

Our back-log situation became so critical at the end of 1952, which is exemplified on Exhibit 43, that we had to put a sales allocation program into effect and restrict sales because of inability to deliver.

Q. Who recommended, if you know, that that sales allocation program be made?

A. That was my recommendation to the company, sir. * * * * * [571]

Q. (By Mr. Christie): Will you please testify, then, as to what happened on this allocation program?

A. If I may refer to Exhibit 43, you will note that at the end of 1952 our order back-log had increased to some 18,000 units as against some 7,000 units that we had on order at the start of that year.

In the face of that tremendous increase in order back-log, coupled with the fact that we had been rather dangerously falling down on delivery commitments made to people in the trade, I recommended that we institute a sales allocation program in effect limiting the number of heaters the different classes of customers could buy, so that we could balance our available supply with the demand and the orders that were currently being asked to fill.

(Testimony of Paul Harvey Hammond.)

That recommendation was followed. We set up rather elaborate mechanics for handling it through our sales office, and it remained in effect during the first half of that year, and of course drastically affected our sales effort through the year, because we were doing the very reverse of selling for at least half of the period.

Q. Are there any other factors that influenced the reduction in sales during 1953, if you know?

A. I would say that concurrently with that we were reaching the limit of our plant capacity, which was another factor, certainly, that entered into my original recommendation. It was impractical to consider construction of a new plant at a time when government allocations were in effect, [573] and we could not be sure of our ability to get material to utilize excess capacity. So we did a considerable amount of subcontracting in an effort to increase our sales, but it was inadequate, and during the latter part of 1953 we added approximately 50 per cent to our plant capacity, some 27,000 square feet was added in the latter months of 1953, but of course did not materially increase our capacity during that year.

Q. Were there any other factors, Mr. Hammond, that you know of?

A. I think we should mention the fact that Coleman came into the field during this period with a competing device. That, I believe, was initially introduced in the latter months of 1952, and of course became most effective during this year 1953. And I

(Testimony of Paul Harvey Hammond.)

think that it also is worthy to mention that a number of other manufacturers of wall heaters have come into the business during this period that we have been talking about.

Q. Heaters with secondary heat exchangers?

A. No, sir; with the exception of Coleman.

Q. Coleman was the only one?

A. That's right. * * * * * [574]

Q. (By Mr. Christie): Mr. Hammond, do you know whether or not there was an increase in price of the heaters with the secondary heat exchangers as compared with the older models, at the time that you changed from one to the other?

A. Yes, sir, there was such an increase in price.

Q. Do you know how much that price was?

The Court: Percentagewise?

Mr. Christie: Percentagewise or otherwise.

The Witness: That varied from model to model. Percentagewise I would say it was just a little under 10 per cent.

Q. (By Mr. Christie): That you actually increased your prices, that is by 10 per cent?

A. The amount of increase in the prices shown.

I think I might qualify that by saying that effectively that perhaps was a somewhat lesser increase, because obviously the secondary heat exchanger, which is referred to here as Exhibit 20-A, would replace a certain amount of vent material which would be used with the conventional style of heater.

Q. How much of the increase in price would that absorb, if you know?

(Testimony of Paul Harvey Hammond.)

A. There is a considerable variation in the types of vent material used, and the price, but assuming a top quality [576] double wall strength, which would be the most expensive installation, I would say probably around \$2.50.

Q. As compared to what? Your other figure is a percentage figure.

A. That would perhaps account for half of the increase. So I would say our effective increase was perhaps closer to five per cent.

Q. You can remember this without reference to any documents?

A. I can remember this on the average. I would have to look at documents for any specific price increase on a given model.

The Court: When did this price increase occur? When did it take effect?

The Witness: It took effect as the new models were introduced into the field, your Honor.

The Court: What year?

The Witness: That was during 1950.

The Court: The price has been the same since, has it?

The Witness: No, there have been other adjustments in price since, but essentially we have always maintained this and had to, at a slightly higher level than we had the competing device. This particular one, I think, can clearly be attributable to the introduction of this new style heater, because at the time it was made our old style wall heater [577]

(Testimony of Paul Harvey Hammond.)

prices remained the same, until they were gradually worked out of our inventories. It was not part of a general increase. [578]

Mr. Christie: Your Honor, we were about to put in evidence a great many documents relating to the approval of the Holly wall heaters, with the secondary heat exchanger, by the American Gas Association. To save time, Mr. Lyon has kindly consented that if I would state that we had AGA approval on all of those models, starting in 1950, and as the subsequent models come in we had AGA approval on all of them, and we still have that AGA approval on all models, he has kindly consented to stipulate that is the fact.

Mr. Lyon: I will accept the statement of counsel and so stipulate.

The Court: I assume, as a practical matter, it would be very difficult to market one without the American Gas Association approval.

Mr. Lyon: I am afraid in most places it would be against the law. Most city codes provide if you haven't got it, you can't sell it.

Mr. Christie: I will now call Mr. Hollingsworth.

JOHN H. HOLLINGSWORTH

recalled as a witness on behalf of the plaintiff, having been heretofore duly sworn, was examined and testified further as follows:

Direct Examination

Q. (By Mr. Christie): Mr. Hollingsworth, were

(Testimony of John H. Hollingsworth.)

you in [579] Wichita to witness the tests which were conducted by Mr. Petoﬀ and Mr. Blazier, and which are reported in Mr. Blazier's deposition and in Defendant's Exhibit R, which I will show to you? A. Yes, I was.

Q. Do you believe that these tests were properly conducted? And if not, state your reasons.

A. No, I don't believe they were. I have had considerable experience running smoke tests over a long period of time, and in my opinion it was fairly obvious, quite obvious that the basic assumption that the only air moving up behind the box, the first box and into the second box was within the confines of the patterns that are shown in this book; that that basic——

The Court: This book being——

The Witness: This book being Exhibit R.

Q. (By Mr. Christie): Would you identify the page, too, so that we are sure we know that you are talking about?

A. I am referring to the pattern shown by the drawings numbered 43-17-1, and by the drawing immediately following that, which has no number but which is entitled "Flow Behind Heater."

The Court: Those are the next to the last and last pages in the book, respectively, are they not? The book being Exhibit R? [580]

The Witness: They are, your Honor.

Q. (By Mr. Christie): Did you conduct any smoke tests yourself on the heaters at the time of the Wichita tests? A. Yes, I did.

(Testimony of John H. Hollingsworth.)

Q. Will you describe the tests and tell what the results were?

A. Yes. It was my observation that the pattern defined as shown on the last two pages of Exhibit R was in error, if it were assumed to be the only air movement up behind the first box. I demonstrated that by placing the smoke wand in a position other than had been established by Mr. Blazier or Mr. Petoff, and was able to demonstrate that air moved outside of the pattern upon which they had based their assumptions. This was visually shown by smoke moving upward behind the box outside of the pattern shown on the last page of Exhibit R.

Q. Will you identify the position and mark it, if you will, with the letter Q, where you noted additional smoke moving up?

Mr. Lyon: If your Honor please, I would like not to have these exhibits marked up here. These were made at one——

The Court: Can he just describe it without marking it?

Mr. Christie: Certainly, your Honor.

Q. (By Mr. Christie): Would you describe it, Mr. Hollingsworth? [581]

A. Yes. I placed the wand at such a position that I got a new smoke pattern which was up the side of the box, outside completely of the confines of the area described by the drawing on the last page of Exhibit R.

Q. Now, what would be the effect on Mr. Blazier's calculations of the 4 per cent contribution from

(Testimony of John H. Hollingsworth.)

the back and sides of the lower box to the output of the upper grille of the secondary heat exchanger or economizer, if you know?

A. In my opinion, the 4 per cent figure would have no significance whatsoever because the basic assumption upon which that 4 per cent figure was predicated was completely in error.

Q. Which direction, if you corrected that error, would the percentage figure be, higher or lower?

A. Very substantially higher.

Q. Now, did you notice anything else that was irregular about the tests?

A. Yes. I noticed that the panel or trim, which is Exhibit 24-A, was so installed that there was quite a gap between the panel and the wall so that air could move in to that gap, and that that gap broke the conduit that was supplied up the sides of the box and introduced a fresh source of air supply, outside of the source of supply at the base of the heater where the smoke was normally placed. This would undoubtedly vitiate the results of the tests as they were conducted. [582]

Q. What did you do about those gaps, if anything?

A. I taped the gaps up, to seal them, with scotch tape; and found that the flow up the back, as observed by a new smoke pattern, was established—was substantially different.

Q. What did it do to the smoke pattern?

A. In my opinion, it increased the flow substantially.

(Testimony of John H. Hollingsworth.)

Q. Was the smoke pattern wider than it had been or narrower, or what?

A. The smoke pattern was substantially different than it had been in that it spread over a greater area.

Q. Did it include the entire box?

Mr. Lyon: Your Honor, the witness has now testified to several smoke patterns. I think he is inferring now these are the smoke patterns that Mr. Blazier did. I think he means the smoke patterns he was able to perform——

The Court: Mr. Blazier or Mr. Petoﬀ?

Mr. Lyon: Mr. Blazier and Mr. Petoﬀ made one set of tests and he made another one. And I want to know, just to correct the testimony now, whether these smoke patterns he is now testifying to are the ones he made with the wand or the ones these gentlemen made.

The Witness: The smoke patterns I am now testifying to are the smoke patterns that I made.

The Court: Be certain to specify that so the record will be clear. [583]

Q. (By Mr. Christie): With the gaps in the side of the box taped up? By that I mean in the trim? A. Yes.

Q. Would you identify where the gaps were, with reference to Plaintiff's Exhibit 24-A?

A. Yes. The gaps were in the area where the—on the sides of the panel where the return flanges on the outside of the panel would normally engage the wall.

(Testimony of John H. Hollingsworth.)

The Court: In this test they would abut the glass, would they?

The Witness: No. In these tests the forward portion of the wall was plaster.

The Court: So they were abutting——

The Witness: To a plaster wall.

Q. (By Mr. Christie): Now, did you observe any other irregularities in those tests, Mr. Hollingsworth?

A. Yes, there were several others; only one which I think is of real significance. That is that the heaters installed in the plaster wall had been installed before the wall was plastered, and that expanded metal lath was used as a base for plastering, which in my personal experience is something I have never seen in residential construction. This provided a condition where the plaster essentially completely blocked the space behind the heater.

Q. What effect would that have upon the contribution of [584] air from the back of the lower box to the economizer?

A. It would seriously reduce the amount of air that moved up the back, because the extent to which the plaster was driven through the expanded metal lath was abnormal.

Q. Will you refer to Plaintiff's Exhibit R and see if you find in the book anything which shows that the heaters were installed in the wall before the wall was plastered?

Mr. Lyon: If your Honor please, in this matter, again, we are getting into another one of these sets

(Testimony of John H. Hollingsworth.)

of half truths. The witness here—we will admit we built one of these and the back was plugged, and it was so stated. The other one had a glass back on it. Now, he says the test was in error because we had a plugged back. Well, he is forgetting that the tests, all except the test on the plugged back, were made on a glass back just the same as he showed in the tests they made.

Now, why do we have—I will stipulate that we made tests with the back plugged——

The Court: Also, with the glass?

Mr. Lyon: ——and that these other tests that we are relying on here in these smoke patterns were made with the glass back. And the witness can't deny that.

Mr. Christie: We are content with that stipulation, your Honor.

Q. (By Mr. Christie): Mr. Hollingsworth, during your cross examination the other day, Mr. Lyon asked you if you had [585] compared the cross-sectional areas for flow into the 3-foot economizer and the 4-foot economizer from the room and from the back and sides of the lower box—by “from the room” I mean through the grilles 7 and 8—and you testified that you had not compared those areas. Have you compared the areas now?

Mr. Lyon: That is objected to as not rebuttal testimony. He has finished his redirect examination and this is on his main case.

The Court: Do you wish to reopen your case in chief for that purpose?

(Testimony of John H. Hollingsworth.)

Mr. Christie: No, your Honor, except at that point we forebore calculating simply to save time. We have now made the calculations and I do not think it disturbs the order of proof particularly to put it in at this time. It is very short and won't take more than a minute.

The Court: Very well. You may reopen your case in chief for that purpose.

Mr. Christie: To that extent.

Would you read the question to the witness?

(Question read.) [586]

The Witness: Yes, I have.

Q. (By Mr. Christie): Will you give that comparison?

A. The entrance area provided by the louvre openings at points 7 and 8, on the Coleman panel——

Q. Plaintiff's Exhibit——

A. Plaintiff's Exhibit——

Mr. Lyon: 24-A.

A. (Continuing) Plaintiff's Exhibit 24-A, I calculated by measuring the width of the slot, the length of the slot, times the number of the louvres, and I find that the area is approximately 9 square inches.

Mr. Lyon: 19? I couldn't hear you.

The Witness: 9.

I then calculated the area on the three-foot economizer, or the area provided up behind the box, as a flow area into the three-foot economizer, and by taking the 13-inch dimension which has been

(Testimony of John H. Hollingsworth.)

established, and the vertical gap of a quarter of an inch, which has been established on the three-foot economizer, I find that that area is 3.25 square inches.

The Court: This last figure is the area of air space between the back of the lower box on the Coleman heater, the Coleman heater exemplified by —What is that exhibit number there?

The Witness: Exhibit 25.

Mr. Christie: 25 and 25-A, your Honor. [587]

The Court: (Continuing) —between the back of that and the wall?

The Witness: No, your Honor. That is the area of the gap, the entrance area provided by the gap between the base of the economizer and the top of the box.

The Court: The base of the economizer—

Mr. Christie: Perhaps if I mount the economizer on top of the heater, Mr. Hollingsworth can demonstrate to your Honor.

The Witness: I took the width of the lower box, times the quarter-inch gap that is provided by the construction of the economizer between the lower box and the base of the economizer. That I considered to be a reasonable index of the entrance area provided to the economizer. That does not include the area on the side between the sides of the box and the wall.

Q. (By Mr. Christie): What was that area so computed?

A. Three and a quarter square inches.

(Testimony of John H. Hollingsworth.)

Q. What is the proportion of the total area that is represented by the gap from the back and sides of the lower box?

The Witness: That area, I don't have the figures with me, but my memory I recall that it was 59 per cent.

The Court: Of what?

Mr. Christie: Of the three-foot economizer?

The Witness: No. On the order of 25 per cent.

The Court: Of what?

The Witness: The area provided from the lower box into the economizer is 25 per cent, approximately, of the area provided through the points 7 and 8 to the economizer.

The Court: I thought it was around three square inches as to nine square inches.

Mr. Lyon: I point out to the witness he has a great big obstruction over three-quarters of that area.

The Witness: I attempted to compensate for that by not including the area up the sides of the box, between the box and the studs.

I don't believe I am explaining the percentage figure correctly.

The percentage of the total area available, entrance area available to the economizer, which is comprised of that area up the back and sides of the box, and the area through the louvres points 7 and 8, the percentage of that total area which is available up the back is approximately 25 or 26 per cent.

(Testimony of John H. Hollingsworth.)

The Court: In other words, you take your nine square inches and add the three and a fraction square inches, and then the three and a fraction square inches is 25 per cent of the 12 total, is that what you mean?

The Witness: Correct. [589]

Q. (By Mr. Christie): Did you do the same thing with respect to the four-foot economizer?

A. Yes, I did.

Q. What was the result there?

A. I found, again establishing the percentage in the same manner, that the percentage of the total area available, that was provided up the back, was approximately 59 per cent.

Q. How did you arrive at that figure?

A. In the same manner as I arrived at the other figures, with one exception; that on the four-foot economizer, rather than being a one-quarter-inch gap here, under installed conditions it is a one-inch gap, according to the Coleman installation instructions.

Mr. Christie: That concludes the examination on this point, your Honor. Do you want to interrupt now for cross examination on this part?

The Court: Why don't you conclude, first.

Q. (By Mr. Christie): Mr. Hollingsworth, you testified that you and Mr. Bedell were the inventors of the patent in suit. Will you describe to me, if you will, what the problems were in the wall heater industry as you knew them at the time you made the invention, and how you solved these problems?

(Testimony of John H. Hollingsworth.)

Mr. Lyon: Your Honor, if we are not going back to his original case, are we going to reopen and retry—— [590]

The Court: Hasn't he testified——

Mr. Christie: Your Honor——

The Court: Just a moment.

Mr. Christie: I am sorry.

The Court: Hasn't he testified that the hot wall was the problem, the problem was to get the heat capacity there without burning the house down, I suppose, and this method he adopted was his method of solving it?

Mr. Christie: Your Honor, he never had an opportunity to testify completely on this point on prima facie. This goes to the issue of validity of the invention.

The Court: I understand.

Is there any issue here about the problem?

I suppose it is ever present in the case.

Mr. Lyon: We don't deny the hot wall problem.

The Court: To get the heater in the smallest possible space with the largest possible capacity, and so as to heat the room without burning the house down, isn't that roughly the problem?

Mr. Christie: That is only part of the problem, your Honor, and I wouldn't undertake to state it myself. Mr. Hollingsworth——

The Court: Very well. We will save time by allowing him to state it.

Mr. Lyon: Your Honor, isn't this—what we are

(Testimony of John H. Hollingsworth.)

doing now [591] is reopening their prima facie case.

The Court: While we are talking about it, probably he could answer it.

The Witness: I believe the only problem that we encountered that I haven't covered in earlier testimony would be that of efficiency and the effect of flue height on the efficiency, and the extent to which that was a problem to us and to the industry. The problem was more than just a hot wall problem in the respect that the solution to the efficiency problem, and the solution to the hot wall problem were counter to each other.

The Court: Can you say it any better, Mr. Hollingsworth, than you have said it here in the patent? Haven't you stated the problem in the patent and stated your solution of it?

The Witness: Yes, your Honor.

Mr. Lyon: And we spent an hour on it on their direct case, on this very point.

Q. (By Mr. Christie): Mr. Hollingsworth, one more question. Will you explain the problem that you encountered with the changing of flue heights, varying flue heights, and how you solved that problem, if you did.

Mr. Lyon: Your Honor, that is the very thing that is put in the patent. He spent an hour on direct examination on it, an hour on cross examination, and now we are going to do it all over again, are we? [592]

The Court: Let's ask Mr. Hollingsworth.

(Testimony of John H. Hollingsworth.)

Have you said it?

Most of us can say things in writing better than we can say it extemporaneously or orally.

The Witness: I don't believe I have mentioned how——

The Court: Then you tell us about that.

Mr. Lyon: Then it is not in the patent.

The Court: He may describe something that existed in the art at the time.

The Witness: The hot wall problem was reduced—this I have said in the patent, but I have to preface my remarks with this—the hot wall problem was reduced by most people by introducing additional relief air into the draft hood. We did not recognize the degree to which this affected the efficiency of the appliance out in the field. No one recognized it for a long time. We were quite puzzled by this problem, because we found that we were getting complaints from customers in the field regarding lack of heat.

The Court: By giving the relief at the draft hood, the heat went out the flue, didn't it?

The Witness: Yes. But the reason we didn't recognize it is because we had not at that time recognized, principally on two-story installations, that the extreme flue height was the very damaging factor.

The Court: In what way? [593]

The Witness: In that the chimney action that was available, due to that added flue height, was substantially higher, and therefore the amount of

(Testimony of John H. Hollingsworth.)

relief air that was drawn into the relief opening of the draft hood went up very markedly. And because our American Gas Association tests were conducted at that time with only four feet of vent on top of the appliance, we were not duplicating the actual conditions that existed in almost every instance in the field. We did not recognize that the 70 per cent efficiency that we were assuming was correct for the appliance was actually firing air under actual installed conditions in most instances.

The Court: Is it an over-simplification, Mr. Hollingsworth, to say that your problem was to save that heat from waste out the flue, put it into the room, utilize it, and at the same time cool the wall?

The Witness: No, at this point that would not be an over-simplification. It, of course, would be at the time of trying to understand the problem, because we had to find a solution to it.

The Court: It is, of course, always easier to look back at it.

The Witness: Yes.

Mr. Christie: I would like to have a piece of pipe here marked as Plaintiff's Exhibit next in order. [594]

The Court: Exhibit 47 for identification, Mr. Clerk?

The Clerk: Yes, your Honor, 47 for identification.

(The object referred to was marked Plaintiff's Exhibit 47, for identification.)

Mr. Lyon: If they are going to introduce this——

(Testimony of John H. Hollingsworth.)

The Court: Let's wait and see.

Mr. Christie: At the conclusion of Mr. Kice's examination yesterday, your Honor, I asked him if it was a fair statement of his testimony that the cross-sectional area of the radiator or flue in his economizer was the same size as the flue that had been used previously in this sort of installation, and he said yes. I am pretty sure he said it on direct examination, also, although I cannot now point to chapter and verse. We will look it up, if necessary. We want now to introduce a piece of that type of flue.

I will ask Mr. Hollingsworth to tell me what this piece which I have had marked Plaintiff's Exhibit 47, for identification, is.

The Witness: This is a piece of a short section of Metalbestos flue commonly called Type B vent or Type BW, which we were using in the laboratory for test purposes.

That is the reason for the test tube on the side of the exhibit.

It is a piece of Metalbestos flue pipe that we obtained on the market as it was manufactured by the Williams-Wallace [595] Company, who produce this type of vent.

The Court: By "we" you mean who?

The Witness: My staff, or my department.

The Court: When you were in the process of developing this device described in the patent in suit?

(Testimony of John H. Hollingsworth.)

The Witness: Not this particular piece of vent, no, sir. I don't know when we purchased that.

Q. (By Mr. Christie): Is this the type of vent that was identified as Type B Metalbestos flue or Type B vent, at the time, say, in '47, '48, or '49, when this sort of pipe was connected directly to the lower box?

A. It is in this respect, that the inside area of the flue passageway is the same. There may be minor constructional differences that have taken place, and the means of attachment.

Q. Have you measured the cross-sectional area of that pipe? A. Yes, I have.

Q. What is it?

A. As I measure it, it is 13.1 square inches.

Q. Now, have you compared that with the cross-sectional area of the pipes in the economizers or secondary heat exchangers identified as Plaintiff's Exhibits 24-B and 25-A, the first being the four-foot economizer and the second the three-foot economizer? [596]

A. Yes, I have. Those areas are nine and a quarter square inches on both.

Mr. Lyon: This testimony is objected to as mere surmise. He doesn't know whether this is the piece of pipe that the Coleman Company and the others were using. He said he bought this for experimental use.

Q. (By Mr. Christie): Do you know of your own knowledge, Mr. Hollingsworth, that this pipe of

(Testimony of John H. Hollingsworth.)

that size was what was used for vents as Type B vent, back in '47, '48, or '49?

Mr. Lyon: By whom?

Mr. Christie: By the industry.

Mr. Lyon: It is immaterial in this case if it was used by——

The Court: Specify the Coleman Company, then. By the Coleman Company and others.

The Witness: Yes, it was. I know this is so, because the internal cross-sectional area of four-inch oval vent, of which this is——

The Court: "This" being Exhibit 47?

The Witness: This being Exhibit 47,—is an example. It is specified by codes and ordinances to be of a certain area, within reasonable limitations.

The Court: And Exhibit 47 has a cross-sectional area of how much, how many square inches? [597]

The Witness: Slightly over 13 square inches.

The Court: And the flue in the four-foot economizer——

The Witness: The flue in the four-foot economizer and three-foot economizer has 9.28 square inches.

The Court: How about Exhibit 20-A, the secondary heat exchanger of Holly?

The Witness: I believe that was 7.09.

The Court: Can you give it to us percentage-wise now?

Mr. Lyon: Your Honor, that still is smaller in

(Testimony of John H. Hollingsworth.)

size than his alleged area of the lower. It is just exactly as Mr. Kice stated.

The Court: I don't know what weight it may have.

Mr. Lyon: It is immaterial.

The Court: Overruled.

Can you give us, roughly, the percentages?

The Witness: Yes. The area of the secondary—the radiator in the secondary heat exchanger of the Holly device is slightly over 50 per cent of that of standard BW vent.

The Court: Exemplified by Exhibit 47?

The Witness: Exemplified by Exhibit 47. The area of the Coleman secondary radiator, as compared to the area of vent as exemplified by Exhibit 47, would be approximately 30 per cent. Excuse me. 65 per cent. Two-thirds of the area.

The Court: Do you offer Exhibit 47 in evidence?

Mr. Christie: I offer Exhibit 47 in evidence, your Honor.

The Court: Received in evidence.

Do you have an objection to this?

Mr. Lyon: That it is immaterial.

The Court: Overruled. Received in evidence.

(The exhibit referred to, marked Plaintiff's Exhibit 47, for identification, was received in evidence.)

Q. (By Mr. Christie): Mr. Lyon has asked me to ask Mr. Hollingsworth some questions on direct, bearing on the times at which the various models of the Coleman furnace—of the Holly furnace,

(Testimony of John H. Hollingsworth.)

excuse me—with the heat exchanger, exemplified by Exhibits 20 and -A, -B, and -C, and Exhibit 44, were first put on the market.

Do you know that, Mr. Hollingsworth?

A. If I understand your question correctly, the heater exemplified by Exhibit 20 was the first one that was put on the market.

Q. When was that?

A. In 1950, I believe. The other heaters, which make up the rest of the series, as I call it, or the other four basic models——

The Court: Four or three?

The Witness: The other three basic models, followed within approximately a year in spaced intervals, as we could get [599] them approved by the American Gas Association and into production. The exact time I would not recall, but I am quite certain that all four models comprising the series were in production in 1951.

Mr. Christie: That is all, your Honor.

Cross Examination

Q. (By Mr. Lyon): You have testified that you put smoke, this titanium dioxide, into the back of these furnaces at Wichita? A. Yes.

Q. You didn't put that in the outlet, did you—I mean in the inlet of the furnace, did you?

A. I put it in the area, inlet area that supplies the space behind the box.

Q. You actually ejected it into a particular place in the furnace?

(Testimony of John H. Hollingsworth.)

A. No, I couldn't eject it, because it was just smoke on a wand.

Q. How did it get in there?

A. The air movement through the base of the heater and up behind the heater carried that smoke with it.

Q. Do you mean to say that you held this wand in front of this furnace at the opening?

A. No. I said I held it inside the opening at the [600] base of the heater in the passageway that supplies the back of the box.

Q. Actually, didn't you stick it between the wall and the furnace right alongside here?

A. Not up there, no, sir.

Mr. Lyon: I should like to point out to the court photographs here, I think in these it shows, and if not the testimony does——

The Court: Exhibit R is it?

Mr. Lyon: No, it doesn't appear in this. I will have to put a witness on.

Q. (By Mr. Lyon): You actually burnt the sides of the furnace up here with that wand when you put it in?

A. That smoke that was on the side of the furnace up there was the smoke that was introduced through the leakage points on the side of the panel that I testified to earlier. When I placed the smoke wand in front of that leakage gap, smoke came in across the side of the box and deposited there. That would show in the photographs. very probably.

(Testimony of John H. Hollingsworth.)

Q. Mr. Hollingsworth, are these apparatuses sealed hermetically? A. No.

The Court: Do you mean for the test or for the field?

Mr. Lyon: I mean for ordinary use.

The Witness: No, of course not. [601]

Q. (By Mr. Lyon): Do all of these grilles fit tightly so there is no leakage around the sides of them?

A. They fit substantially tight. I would say that in some instances there is a gap of as much as a thirty-second, depending upon how accurate the surface of the wall might be.

Q. Would you say that for the purpose of your patent, if they are inserted with a gap around them, that that would render your device inoperative?

A. It wouldn't render the device inoperative.

Q. Would it accomplish the functions that are taught in the patent, if there was any gap around the edge of the outer shell?

A. Yes, because the amount of air that came in there would not upset the basic function of the appliance.

Q. Then, if you left a small crack there it would upset the basic function of the appliance as patented? A. No, it would not, I say.

Q. Then why did you say if there was a small crack around the defendant's device, that it was not operating in the condition that you say your device can operate still?

A. I mentioned the gap only for this reason:

(Testimony of John H. Hollingsworth.)

that it substantially exceeded the gap that you would normally expect to see in the field, by quite a bit.

Q. How big was that gap? [602]

A. I believe that is in the deposition. I don't recall the exact dimension. It was substantially larger than that that I had ever seen on any heater installed in the field, and that gap would, under test conditions, where an attempt was made to determine flow rates, would certainly upset the test results. [603]

Q. Then it would completely change the function of the machine if it upset the flow?

A. It wouldn't change the function of the machine. It would change the order of magnitude of the results.

Q. Well, does your patent have any statement as to magnitude of results? A. No.

Q. Are you relying on a specific amount in it?

A. It is implied. I don't believe I understand the question.

Q. It is not stated. Well, you were saying that if the defendant leaves a crack on here, that he is no longer functioning in the manner of your patent, aren't you?

A. I said that it would not change the basic function of the device, but that it would vitiate the test results if I were attempting to accurately determine the air flow.

Q. Then with that crack around there it would no longer infringe your patent, would it?

(Testimony of John H. Hollingsworth.)

A. It hasn't changed the basic function of the appliance.

Q. Then the test is perfectly legitimate no matter how big the crack is, because the function and the operation is still the same?

A. It would depend on who was attempting to evaluate those test results. I would say the test would certainly not [604] be legitimate on that basis.

Q. All right. Now, why, Mr. Hollingsworth, when the defendant leaves a small crack in some place in his device do you presume that he gets a perfectly good draft and accomplishes a perfectly good result, when the plaintiff leaves one opening, why, that's just mechanical tolerances necessary because you can't make it any better—why isn't the same thing true with the defendant's devices?

A. It is true with the defendant's devices. I agree completely. But I certainly wouldn't leave that gap on Exhibit 44, as small as it is, I would not leave it in that position if I were trying to run some carefully controlled laboratory tests because I would feel that would upset some of the results, even to a minor degree.

Q. Isn't that the way it is used in the field? You testified that is the way it is used when it is installed. Isn't that the correct manner?

A. I testified that there was normally a 32nd to a 16th of an inch production tolerance gap provided there, for obvious production reasons.

Q. Now, have you measured the area of the in-

(Testimony of John H. Hollingsworth.)

take at points 7 and 8? Would you please actually measure that area?

A. Yes. As I measured it, I measured the area and found that the gap was $5/32$ of an inch, as nearly as I could determine by taking an average. I found that the length of [605] the slot was $5\frac{3}{4}$ inches, as nearly as I could determine the average; and that there are one, two, three, four, five—ten slots.

Q. Then that comes to approximately 36 square inches?

A. Not according to my calculations.

Q. Well, I will call the court's attention—I will measure the device. This device is six inches to this grille long by $2\frac{1}{4}$ wide. And there are two of them.

A. But that is not net free area.

Q. You have got the small deduction of the width of this metal which is approximately what scale?

A. The only entrance area available into the—in through the louvres with the actual opening provided through which I can see light. That is the area that I measured.

Q. Well, isn't this all opening except for the width of these louvres?

A. No, most certainly not.

Q. Why not?

A. Because I can go from two extreme conditions, from the louvres being completely closed to full wide open. These louvres are in a partially closed position.

(Testimony of John H. Hollingsworth.)

Q. They still leave the same area open.

A. No, they do not.

Q. All right. Now, you have measured the area on top of here and taken the whole width. Didn't you ignore the [606] center pipe when you measured the width that it could come back and up into the thing?

A. No, I didn't. I considered that the——

Q. Just a minute. You said this was 13 by 3/16 would be the area. Now, did you subtract the width of the pipe in the way?

A. I also said that I considered that the area that I neglected up the sides of the box provided between the box sides and the studs was essentially equivalent to the restriction that would be provided by the tube coming up through the box. I think that's a conservative estimate.

Q. And yet there is no way that any air can get up the sides of this heater.

A. Yes, there is.

Q. You are just assuming. Will you show the court, please, where it can get in there? I want to see.

A. (Witness complies.)

Q. No. Put the shell on it and show us where you can possibly get any air up to the top of that box with the shell on it and the studs in place.

A. I would be glad to.

With the shell in place, we have basically the same condition as I described previously on 44, Exhibit 44, with one exception; that the area provided in the——

(Testimony of John H. Hollingsworth.)

Q. Now, have you got all the parts again—let's get [607] all the parts of this machine together before you point out areas that don't exist when you put them together.

A. Let me complete my answer. The space provided between the studs and the sides of the box, this area defined by the wall width, and the dimension between the wall and the side of the box is open and free to come—to be—to allow air to come over the top of the box.

The Court: Are you referring to the space that is defined by those ribs?

The Witness: I am referring to the space, your Honor, that is the difference between the 13 inches and the normal stud width, which is approximately $\frac{5}{8}$ of an inch.

The Court: Let the record show we are referring to Exhibit——

The Witness: 24-A.

Mr. Lyon: 24-A and 24.

Q. (By Mr. Lyon): Now, is that all of this heater?

Mr. Christie: Your Honor, may I assist the witness in putting this heater together, because obviously it is more than the man can hold all at once.

Mr. Lyon: I have no objection.

The Court: Yes, if he needs any assistance.

The Witness: I think I can demonstrate——

(Testimony of John H. Hollingsworth.)

Mr. Lyon: I would like to have the whole machine put together. [608]

Now, put the 3-foot economizer on there. That's what we are talking about.

The Witness: The area that I was referring to is the area——

Mr. Lyon: Please, Mr. Witness, let's put the machine together——

The Court: Let's let him explain his answer, if he wishes.

Mr. Lyon: ——so we can see something not out in space.

The Court: Let the witness explain his answer.

The Witness: The area that I was referring to was the area defined by the 13-inch width times the quarter inch height provided here. I took that area because I assumed this, that the restriction provided by this tube to the back was more than compensated by the area that was available from the sides, and that I felt that I was justified in taking this area defined by the width of the box times the gap between the base of the economizer and the top of the box.

The Court: Does that answer your question, Mr. Lyon?

Mr. Lyon: It doesn't even start to.

The Court: Put another question.

Mr. Lyon: I asked the gentleman to assemble it and show us these openings.

The Court: You can't see the openings if he puts the shell on it. [609]

(Testimony of John H. Hollingsworth.)

Mr. Lyon: That's exactly my point. They are not there, your Honor.

The Witness: I think I can clarify that. I believe what Mr. Lyon is referring to are these clips here which seal the space in the panel side rails which normally would move air. That air is allowed to relieve itself out grilles 9 and 10.

These clips at the top of Exhibit 24-A seal those conduits to the top of the box so that air from those conduits cannot get into the economizer. However, they do not seal the area here that's defined by the stud space.

The Court: You are referring to the area, the depth of that overlapping flange downward on to the top—over the side, rather, of the lower box with the 3-foot economizer installed, is that it?

The Witness: That is correct, your Honor.

The Court: That's the only area you are referring to as far as the sides are concerned?

The Witness: Yes, your Honor.

The Court: And the depth of that would be whatever distance there might be between the stud and the rib of the box, or the side of the lower box?

The Witness: Yes, except that the other dimension which has just been described as the width of the flange at the base of the second box is not quite right in that it also includes the normal plaster thickness or dry wall thickness, [610] which is anywhere from a half inch to an inch. So it would be somewhat wider than that flange.

Mr. Lyon: Now, if the witness will please put

(Testimony of John H. Hollingsworth.)

the machine together, I would like to point out to your Honor there is no such opening as he has testified to; that the only place air can enter this economizer from the back or the sides is through that place that he measured that is obstructed by the center flue.

The Court: All right. Now, is it assembled to your satisfaction?

Mr. Lyon: The header comes right there (indicating).

Q. (By Mr. Lyon): Now, is not the only air that can come up the side go in under here?

A. The air that comes up the side goes in under there, yes.

Q. That's the only opening into there from the sides?

A. That's what I said, plus the thickness of the plaster.

Q. All right. Now, that isn't an opening out in here some place, is it (indicating)?

A. It communicates with this (indicating).

Q. It has to come up there and come out this same opening that you were measuring before?

A. Yes.

Q. And, therefore, that is still obstructed by this [611] pipe.

A. But the perimeter of the area that supplies that is greater than the area—

Q. It still comes out that one hole that is plugged by that pipe—substantially three-quarters of that area is?

A. I can't agree with that.

(Testimony of John H. Hollingsworth.)

Mr. Lyon: Do I make myself clear, your Honor, on these——

The Court: I think I see the situation. It is just a question of whether the compensation that Mr. Hollingsworth allows is a fair compensation.

Mr. Lyon: That is right.

Q. (By Mr. Lyon): Now, will you measure this area across here and here (indicating), and give us the square inches of actual area that air can come into the front?

The Court: You mean excluding the flue?

Mr. Lyon: Excluding the flue.

Q. Now, what are those dimensions?

A. $3\frac{1}{2}$ inches on each side. So that would be 7 times $\frac{1}{4}$ of an inch, or $1\frac{3}{4}$ square inches.

Q. $1\frac{3}{4}$ square inches. Then it's approximately, the outer grille is approximately 15 to 20 times larger than that?

A. Oh, no.

Q. Oh, no? A. No. [612]

The Court: The outer grille? You are referring to points 7 and 8?

Mr. Lyon: That is right. 7 and 8 measure approximately 30 square inches; this one approximately $1\frac{3}{4}$ by the witness' own measurement.

The Witness: 7 and 8 are very definitely in the order of magnitude of 9 square inches as compared to 1.75. That's on the order of 1 to 5.

The Court: That would be 20 per cent, roughly 20 per cent instead of 25 per cent.

The Witness: Yes, your Honor.

The Court: I think I have it.

(Testimony of John H. Hollingsworth.)

Mr. Lyon: Well, I don't. I insist they are approximately——

The Court: No, but I have your contention and I have the witness' contention. I think I see what the point of difference is.

Q. (By Mr. Lyon): Now, this smoke that you introduced into the sides of this heater in these tests in Wichita, that was hot, wasn't it?

A. The smoke was hot?

Q. Yes. A. No, it wasn't.

Q. You inserted titanium——

A. Tetrachloride. [613]

Q. ——tetrachloride, and that reacts when it hits the air to make an oxide, doesn't it?

A. Yes.

Q. And there is a heat reaction, isn't there?

A. Yes.

Q. And that actually burned the sides of the furnace when you did it?

A. Oh, no. No, the condition that would exist on the sides of the furnace would be a corrosive condition, due to the acids that are produced in that reaction.

Q. Now, is that reaction to the oxygen condition, is that a cold reaction; no heat developed?

A. There is heat developed in any reaction like that.

Q. Well then, therefore, that is not a cold smoke.

A. By the time it is in the position where I would observe it, I would consider it a smoke that was so nearly the same temperature as the ambient

(Testimony of John H. Hollingsworth.)

gas conditions, that I would consider it not heated.

Q. And that was forced in at the sides, though, it wasn't allowed to go into the front of the opening?

A. It wasn't forced in, no.

Q. How did it get in? You didn't put it in the main opening to the furnace, did you?

A. Yes.

Q. Down in front?

A. I introduced it—— [614]

Q. Oh, you stuck your wand up in there, yes.

A. I put my wand in through the opening into a position where the air moved up around the box, yes.

Q. Yes, I remember how it was done. You had a hook on the wand and you reached in and stuck it up this way, didn't you?

A. About two or three inches, yes.

Q. It wasn't out here and allowed to go in the normal paths of air drawn into this furnace, though, was it?

A. On that particular test, no.

Q. Was there any test that you have ever made that you allowed the furnace to operate with an outside source of smoke and didn't insert or inject it in some way?

A. Oh, yes, many, many times; not at the Wichita tests.

Q. None that you have testified today, though, or at any time in this trial?

A. I conducted tests during——

Q. I asked you any of the tests that you have

(Testimony of John H. Hollingsworth.)

testified at this trial, whether those tests were made by allowing the smoke to get in there in the normal way, or was it injected by someone?

A. Of my own tests?

Q. Yes.

A. The specific ones that I have been testifying to today, no. [615]

Q. How about those that you testified to the other day?

A. I don't recall that testimony.

Mr. Lyon: I think that is all of this witness.

Mr. Christie: Your Honor, during Mr. Lyon's cross examination, he gave the impression, by reference to Defendant's Exhibit R, that the photographs which appear were taken at the Wichita tests. I can call the witness on this point, but I am sure there will be no disagreement that the pictures in Exhibit R were taken prior to the tests by the defendant when the plaintiff and his representatives were not present.

Mr. Lyon: I will stipulate to that.

The Court: Very well. Do you accept the stipulation?

Mr. Christie: Accepted. [616]

* * * * *

WARREN BLAZIER, JR.

recalled as a witness on behalf of the defendant, having been previously duly sworn, was examined and testified further as follows:

Direct Examination

Q. (By Mr. Lyon): Mr. Blazier, these tests that were made at Wichita, were you present when Mr. Hollingsworth made these tests with this titanium tetrachloride?

A. Yes, I was. They were part of my cross examination by Mr. Christie.

Q. They were? A. Yes.

Q. Was that smoke, the heat put in, forced into the machine?

A. Yes. And I testified to that in my deposition, during that cross examination.

Mr. Christie: Your Honor, it seems to me this is simply a repetition of what is in Mr. Blazier's deposition. I see no—this is pure repetition on counsel's part.

Mr. Lyon: I have just one more question and then I will be through.

The Court: Very well.

Q. (By Mr. Lyon): Mr. Blazier, when they put this wand in there, didn't it leave marks on the back and on the sides [617] of the heater?

A. That is correct.

Q. Now, about approximately where would you say those marks were left, using Exhibit 24? Would you take a piece of chalk and mark on there where those, either burns or rust or whatever was left?

(Testimony of Warren Blazier, Jr.)

A. There were stains that I recall that were left on the sides of the lower box in this region—which I will mark (indicating).

Q. In chalk? A. In chalk.

Q. On the side of the Exhibit 24?

A. Yes.

Q. Now, was that on one side or both sides?

A. I don't recall at the moment. I think the test was done on just the one side, as the demonstration.

The Court: What, in your opinion, caused the marks or the stains?

The Witness: In the immediate vicinity of the smoke wand, which in this case was a titanium tetrachloride solution—well, I will say it this way: The thing that produces the smoke, when you use titanium tetrachloride there is a reaction of the titanium with water vapor in the air and you get titanium dioxide, which is white pigment, and hydrochloric acid. Now, the heat of reaction is quite high and [618] there is a lot of spitting of particles as this reaction takes place. And there is a deposit that can be built up just due to the white pigment in the smoke. And on this test that I witnessed, the wand was hooked so that it could be inserted in behind the unit and up in the space between the side of the case and the stud space.

The Court: These black marks—were they black or white?

The Witness: These were white in that case—white and black. I mean, it was a stain, and it is

(Testimony of Warren Blazier, Jr.)

difficult to say just what the proper description of the color would be.

Q. (By Mr. Lyon): Now, were there any more than the one you have indicated here?

A. There was a number of stains around the sides of the outer case during the period that he was checking to see if there was some air entrainment in the space around the case and the wall.

Q. Now, this reaction of titanium chloride, doesn't it kind of expel the smoke, like this, off the wand (illustrating)?

A. It's a highly active reaction, yes, sir.

Mr. Lyon: I think that's all, your Honor.

Mr. Christie: I have another question of Mr. Blazier. [619]

Cross Examination

Q. (By Mr. Christie): Mr. Blazier, I am referring now to Defendant's Exhibit—your deposition taken in Wichita—Exhibit Q in evidence.

May I hand it to the witness?

At page 88 of the deposition, and I will read it to you. Now, beginning about half way down page 88:

“Q. Now, Mr. Blazier, I am going to ask Mr. Hollingsworth to repeat that test with heater No. 68. I would also like to ask what assurance we have of what we have observed on units 1 and 2, whether that has been observed with the correct input conditions.

“A. It is correct for those heaters.

“Q. Now, would you step over here, Mr. Blazier,

(Testimony of Warren Blazier, Jr.)

and tell me what you see, with the wand placed in the lower right-hand corner?

"A. With the wand placed in the lower right-hand corner at the back of the heater casing * * *

"Mr. Hollingsworth: Would you look at the wand again?

"Q. (By Mr. Christie): Will you explain the position of the wand?

"A. I see what it's doing; it is all right. I [620] wanted to be certain that he was not touching the electric wiring, which might give him a bad shock.

"Q. Tell me what you observed.

"A. I observed that the wand was placed just inside of the heater chamber at the base of the heater. I noticed that flow from the wand started to flow up the stud space but was drawn into the lower box.

"Q. Where is the smoke coming out?

"A. And I see the smoke coming out of the lower box main outlet grille, where it should, on the front. I see a small amount coming out of the lower box outlet back of the grille."

Now, you agree that this is your testimony, isn't it?

A. This is part of it, yes.

Q. And you do not mean now to change this portion of your testimony, or any other testimony that you gave at Wichita?

A. No, sir, definitely not.

This is not the only reference, however, to the position of the wand on your cross examination of

(Testimony of Warren Blazier, Jr.)

me. This is one test that we haven't even covered yet today. This is on the Model 68 with the rear outlet, and the test at that time was to show the smoke coming out of the rear outlet, which it did.

Q. But you are content to rest on your testimony? [621]

A. I will stand by my testimony in this deposition, Mr. Christie. [622]

* * * * *

Mr. Lyon: I was coming to that.

The plaintiff has not had the decency to inform this court that Mr. Landsberg is in the employ of a company of one of plaintiff's counsel.

The Court: That does not show in the record, does it?

Mr. Lyon: No.

The Court: That was not asked Mr. Landsberg in cross examination.

Mr. Lyon: No, it doesn't. But I will ask Mr. Christie if it is not true, right now.

Mr. Christie: What is your statement?

Mr. Lyon: That Mr. Landsberg is an employee of one of the companies on which you are on the Board of Directors and a stockholder?

Mr. Christie: Mr. Landsberg is an employee of the Consolidated Engineering Corporation. I happen to be on the Board of Directors of that corporation.

I assure you that I have no influence over Mr. Landsberg; that I exerted no influence over Mr.

Landsberg; and I think this is highly improper on the part of Mr. Lyon.

He could have well asked Mr. Landsberg if I had directed him to testify. [696]

I will tell you, your Honor—and be sworn if necessary—that I did not; that I simply told Mr. Landsberg to go out and make a fair determination of this thing and bring us the results. [697]

* * * * *

[Endorsed]: Filed April 1, 1955.

PLAINTIFF'S EXHIBIT No. 11

[Letterhead of Dawson, Tilton & Graham]

HD:m

April 15, 1953

James B. Christie, Esq.,
595 East Colorado Street,
Pasadena 1, California

Dear Mr. Christie:

Re: Holly Manufacturing Company
Patent No. 2,602,441—

The Coleman Company, Inc.

I have forwarded your letter of March 3, 1953, to The Coleman Company, Inc., and have received a communication from the company with respect to tests which it has performed.

I am advised that when the unit is properly installed, the air flow from the space about the lower box into the upper box is inconsequential. Of course, to make the structure hermetically sealed

would require extremely tight joints, which are difficult to get in a plaster wall. It was felt by the Coleman technical people, however, that the trace of air flowing upwardly was inconsequential.

I have now been advised by Coleman that in view of the comments in your letter, they have decided to make a further change in the structure in which the upper unit is seated within the lower unit so that there is no possibility of any flow of air from the space about the lower unit into the upper box. I believe that this will satisfy your client and I shall plan to send you a copy of the drawing of the new structure in the very near future.

Yours very truly,

DAWSON, TILTON & GRAHAM

/s/ By HORACE DAWSON

cc The Coleman Company, Inc.

Wichita 1, Kansas

Attn: Mr. Jess L. Moore, Jr.

PLAINTIFF'S EXHIBIT No. 12

[Letterhead of Dawson, Tilton & Graham]

HD:m

June 4, 1953

James B. Christie, Esq.,
595 East Colorado Street,
Pasadena, California

Dear Mr. Christie:

I am enclosing a sketch of the Coleman wall type burner. The Coleman Company has given me working drawings, but in order to make the matter clear, it seemed to me better that a drawing should be prepared similar to the one shown in the Hollingsworth, et al. patent, and, accordingly, I have had such a drawing made.

In the drawing, you will note that the second or upper box 10 is closed at its bottom and that it is open only at its forward intake end 11. None of the air from about the lower box is thus able to enter the upper box 10. Instead, the air that enters the upper box 10 is room air passing through the entrance 11 and extending upwardly about the pipe 12 and outwardly through the discharge opening 13.

I am enclosing also photostatic copies of an advertisement of the Metalbestos Vent Assembly, which advertisement came out several years prior to the filing of your client's application for patent. The advertisement shows a wall heater, and more particularly a vent structure which is employed with a wall heater. The Metalbestos Wall Heater Vent Assembly is used with the common wall heater

in which there is a central radiator, a burner for heating it, a stack, a draft hood provided with a relief opening into the room, and the usual outlet and inlet passages. Over such a wall heater is placed the Metalbestos "Wall Heater Vent Assembly", which has an inner radiator communicating with the stack of the wall heater and about the radiator is a second box having inlet parts for receiving air in the lower part of the chamber. Any air leaking upwardly from about the lower box will pass into the second box of the Metalbestos Wall Heater Vent Assembly. We call this structure to your attention because your client has been concerned with the fact that a trace of air may leak past any barrier placed in the studding space and find its way into the upper box. A studding space, with the rough plaster therein, is, of course, difficult to seal, and in the prior Metalbestos installations, it is found that a small amount of air passes upwardly around the barrier and into the second box.

Yours very truly,

DAWSON, TILTON & GRAHAM

/s/ By HORACE DAWSON

Encs.

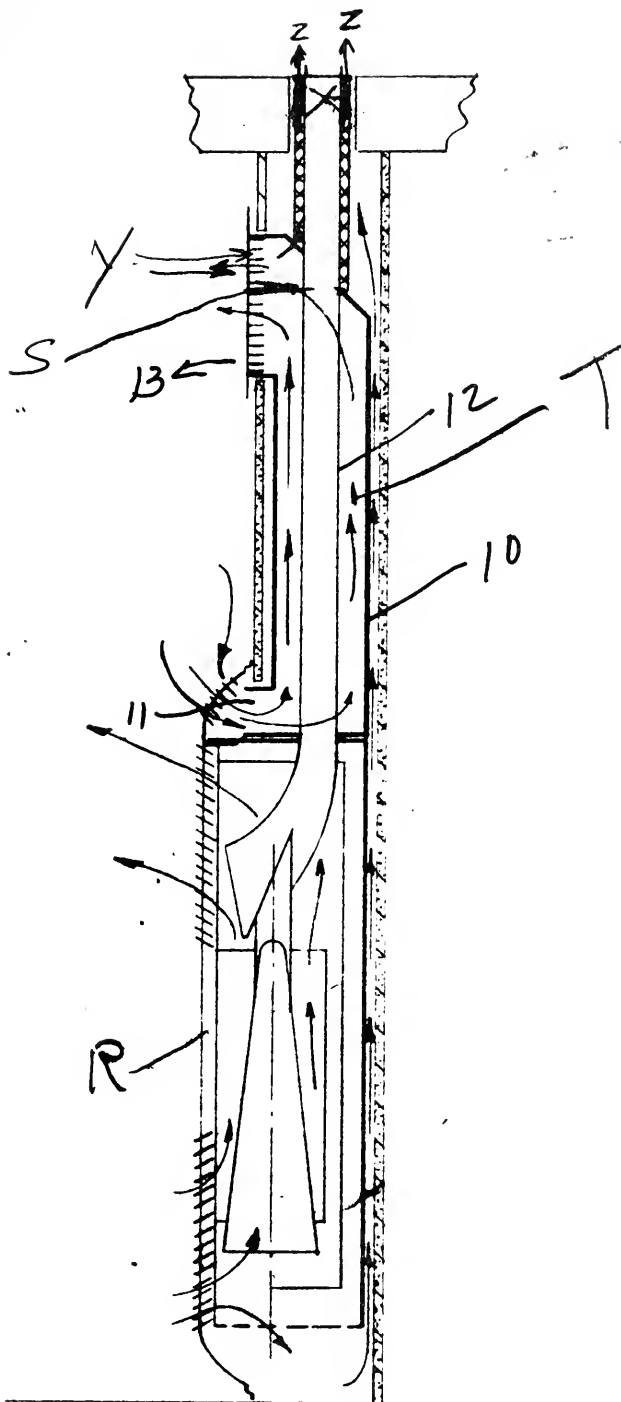
cc The Coleman Company, Inc.

Wichita 1, Kansas

Attn: Mr. Jack Kice



4-154
Plaintiff's
Exhibit 1
205





PLAINTIFF'S EXHIBIT No. 15

Mr. Stanley Johnson February 23, 1954
Holly Manufacturing Company
875 South Arroyo Parkway
Pasadena, California

Dear Stan:

I have enclosed for your file a copy of our letter to Thomas Gressett in Denver concerning the article appearing in the Daily Journal.

We have not had an opportunity to talk to Mr. Lyon, local counsel for the Coleman Corporation, concerning this matter. However, we did notify his secretary of the action we were taking.

I trust that this will take care of the matter satisfactorily. If you have any further suggestions would you please let me know.

Sincerely,

Richard B. Hoegh

RBH:eca—Enclosure

PLAINTIFF'S EXHIBIT No. 16

Mr. Thomas G. Gressett
2705 South Gilpin Street
Denver 4, Colorado

Dear Mr. Gressett:

Pursuant to the understanding we reached by telephone this afternoon, we are sending you the following proposed statement which you agreed to

have published in the Daily Journal in Denver:

"Thomas G. Gressett of the Thomas G. Gressett Company retracts the statement published in the February 13, 1954 issue of the Daily Journal and in particular that portion of the statement as follows:

'Holly has won four previous suits contesting Coleman's heat economizer ideas, claiming they were developed from Holly plans'

"Mr. Gressett points out that Holly has not won four previous suits contesting Coleman's heat economizer ideas; the Holly Company is suing the Coleman Company in the Federal District Court for the Southern District of California, alleging that Coleman furnace models No. 67, No. 68 and No. 69 infringe Holly patent No. 2,602,441. It is expected that the suit will be tried sometime in late 1954."

We trust that the foregoing suggested retraction will be given the same circulation as the previous story published in the Daily Journal.

Yours very truly,

Richard B. Hoegh

RBH:eca

PLAINTIFF'S EXHIBIT No. 18

In the United States District Court for the Southern District of California, Central Division

[Title of Cause No. 15,886-WM.]

DEFENDANT'S ADMISSIONS AND DENIALS
IN RESPONSE TO PLAINTIFF'S REQUEST FOR ADMISSIONS

On December 15, 1954 plaintiff served upon the defendant its Request for Admissions. Defendant admits and denies said request as follows:

I.

Request No. 1:

That defendant's wall heaters designated as models 64, 67, 68 and 69 include a first box adapted to be mounted in a wall of a room to extend upward therein from a level near the floor of the room to a level part way to the ceiling.

Defendant admits this request.

II.

Request No. 2:

That defendant's wall heaters designated as models 64, 67, 68 and 69 include a first hollow radiator mounted in the box and spaced from the walls thereof.

Defendant admits this request.

III.

Request No. 3:

That defendant's wall heaters designated as models 64, 67, 68 and 69 include means for burning fuel in the first radiator.

Defendant admits this request.

IV.

Request No. 4:

That defendant's wall heaters designated as models 64, 67, 68 and 69 include means connected to the lower portion of the first box for introducing air thereinto near the floor of the room.

Defendant admits this request.

V.

Request No. 5:

That defendant's wall heaters designated as models 64, 67, 68 and 69 include means connected to the upper portion of the first box for discharging air into the room from the box near its top.

Defendant admits this request.

VI.

Request No. 6:

That defendant's wall heaters designated as models 64, 67, 68 and 69 include a second box adapted to be mounted in the wall above the first box to extend from a level just above the first box to a level near the ceiling.

Defendant admits this request.

VII.

Request No. 7:

That defendant's wall heaters designated as models 64, 67, 68 and 69 include a second hollow radiator disposed in the second box and spaced from the walls thereof, the horizontal cross section of the second radiator being substantially smaller than that of the first radiator.

Defendant denies this request.

VIII.

Request No. 8:

That defendant's wall heaters designated as models 64, 67, 68 and 69 include means connected with the upper portion of the second box for discharging air from the second box into the room just below the ceiling.

Defendant admits this request.

IX.

Request No. 9:

That defendant's wall heaters designated as models 64, 67, 68 and 69 include a draft hood provided with a relief opening into the room and connecting the top of the first radiator with the bottom of the second radiator, said second hollow box having an inlet opening adjacent the bottom thereof and adapted to receive air flowing upward outside the first box and inside the wall.

Defendant denies this request.

X.

Request No. 10:

That defendant's wall heaters designated as models 64, 67, 68 and 69 include a flue connected to the top of the second radiator.

Defendant admits this request.

XI.

Request No. 11:

That defendant's wall heaters designated as models 64, 67, 68 and 69 include apparatus as set forth in requests 1 through 10 above, provided with a baffle disposed in the first box behind the first radiator and spaced from the radiator and also from the rear wall of the box.

Defendant denies this request.

XII.

Request No. 12:

That defendant's wall heaters designated as models 64, 67, 68 and 69 include apparatus as set forth in requests 1 through 10 above, provided with a baffle disposed in the first box behind the first radiator and spaced from the radiator and also from the rear wall of the box and the baffle, said conduit being open at the bottom and also at the top and in communication at the top with the interior of the first box.

Defendant denies this request.

XIII.

Request No. 13:

That defendant's wall heaters designated as models 64, 67, 68 and 69 include apparatus as set forth in requests 1 through 12 in which the second radiator is composed of a shallow front member and a shallow rear member.

Defendant denies this request.

XIV.

Request No. 14:

That the wall heaters manufactured and sold by plaintiff and designated as the "NarroWall" embody the inventions described and claimed in the patent in suit.

Defendant denies this request.

XV.

Request No. 15:

That the two Coleman wall heaters, model No. 67, which were tested by Henry Landsberg during his deposition on July 26 and 27, 1954, were installed in simulated wall sections in accordance with the installation instructions applicable to each of the heaters.

Defendant denies this request.

XVI.

Request No. 16:

That the defendant's wall heaters, model No. 67, which were tested by Henry Landsberg during his deposition on July 26 and 27, 1954, were connected to the type of gas supply specified by defendant for use in such heaters.

Defendant denies this request.

XVII.

Request No. 17:

That the rates of heat input to the two defendant's wall heaters, model No. 67, which were tested by Henry Landsberg during his deposition on July 26 and 27, 1954, were within the limits established by defendant for such wall heaters.

Defendant denies this request.

XVIII.

Request No. 18:

That the natural gas burned in defendant's wall heaters which were tested during the deposition of Henry Landsberg taken on July 26 and 27, 1954, had a B.T.U. content of 1100 B.T.U.s per cubic foot.

Defendant denies this request.

Dated: December 17, 1954.

LYON & LYON,

/s/ By FREDERICK W. LYON,
Attorneys for Defendant

Affidavit of Service by mail attached.

PLAINTIFF'S EXHIBIT No. 19

In the United States District Court for the Southern District of California, Central Division

[Title of Cause No. 15,886-WM.]

STIPULATION AND ORDER

Defendant's objections to Interrogatories Nos. 5 and 6 heretofore propounded by plaintiff to defendant, having come on for hearing, and pursuant to the following stipulation,

It Is Hereby Ordered and Decreed that defendant need not answer Interrogatories Nos. 5 and 6, and that defendant need not serve and file answers to Interrogatories Nos. 1 and 4 until January 11, 1955.

Dated: This 11th day of January, 1955.

/s/ WM. C. MATHES,
United States District Judge

STIPULATION

It is hereby stipulated by and between the parties that defendant has had substantial commercial success in the manufacture and sale of its models 64, 67, 68 and 69 wall heaters; it being understood that this is not a stipulation that defendant's models 64, 67, 68 and 69 are in any way an infringement of the letters patent in suit.

It is further stipulated between counsel that defendant will supply and has supplied plaintiff's counsel with a copy of the unexecuted answers of defendant to Interrogatories Nos. 1 to 4 and that

these interrogatories will be answered under oath on January 11, 1955.

Dated at Los Angeles, California, this 11 day of January, 1955.

LYON & LYON,

/s/ By FREDERICK W. LYON,

Attorneys for Defendant

/s/ JAMES B. CHRISTIE,

Attorney for Plaintiff

PLAINTIFF'S EXHIBIT No. 30

Coleman Furnace No. 67 Equipped With Either
3 ft. or 4 ft. Secondary Heat Exchanger (Eco-
nomizer)

Comparison of Cross Sectional Areas of Upper
and Lower Radiators

The volume of the lower radiator was measured by plugging its flue tube with wax and filling the rest of the radiator with water. The depth of the water required to fill the radiator being 36 inches. It took 23.2 lbs. of water to fill the radiator. This amounts to 2.78 gallons or 642 cubic inches. The cross sectional area of the lower radiator is therefore 642 divided by 36 or 17.83 square inches.

The cross sectional area of the upper Coleman radiator is uniform and was computed to be 9.28 square inches.

The cross sectional area of the lower radiator divided by the cross sectional area of the upper radiator is 17.8

$$\frac{\text{---}}{9.28} \text{ or } 1.92$$

PLAINTIFF'S EXH. 3A

PAGE #

SUBJECT 195 TEST NO. _____ DATE 12/24/58 ENGINEER Biggers

PRODUCT _____
 OBJECT OF TEST Avg 5 element cross sectional area - Holly 35 NS
and Coleman 35,000 Btu input (old style)

TAIL CHANGES OR CONDITIONS Volume measured exclusive of five tubes.
Five tubes plugged & filled with wax. Units weighed
before and after filling with water.

PROCEDURE-CONDITIONS-SKETCH

Note: weights given below include wt of stand
necessary to hold element in upright position.

Holly 35 NS.

1- filled with water --- 55.1 lbs

wt- empty --- 22.4

32.7 lbs - 1/20

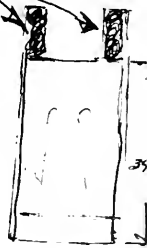
Volume = $1728 \times \frac{32.7}{62.4} = \underline{905 \text{ in}^3} = \underline{3.96 \text{ gallon}}$

Let A = avg cross sectional area.

$$V = 905 \text{ in}^3 = Ah$$

$$A = \frac{905}{34.75} = \underline{26.04 \text{ in}^2}$$

Wax



Coleman 35,000 Btu Input

wt- filled with H₂O = 44.6

wt- empty - 21.4

23.2 lbs - 1/20

Volume = $1728 \times \frac{23.2}{62.4} = \underline{642 \text{ in}^3} = \underline{2.78 \text{ gallon}}$

$$= \frac{642}{36} = \underline{17.83 \text{ in}^2}$$

Wax





PLAINTIFF'S EXH 34-A

1st. Week of Period

STATUS REPORT

Week Ending 12/28/49

	30E	30R	37E	37R	45E	45R	57E	57R	25ND	25RD	37N	45R2	50E	32D/35	
Prod. Week									465	107			19		591
Rec. Week	8	16	10	14	8	13	3	215	38	(11)	4	0	190	0	509
ed Week	7	14	13	14	17	97	-	18	120	33	9	7	193	-	543
ed d/Date	7	14	13	14	17	97	-	18	120	33	9	7	193	-	543
Sched. d/Date	15	20	25	30	40	160	10	40	135	65	50	50	200		860
uction d/Date									465	107			19		591
Sched. d/Date									355	260					615
Orders Date	973	1178	1051	2326	1284	7356	384	3230	8562	3022	1841	3400	5254	68	39,998
Shipped Date	1082	1138	1076	2037	1276	6467	376	2614	6955	2471	1342	3383	2810	112	33,206
Prod. Date	1521		2598		7569		414	1997	7400	2711	1323	3287	2825		31,645
er Sched. Date	1305	1455	1095	1545	2915	5230	455	1550	7750	775	1275	1645	1885		28,880
Orders and	3	68	5	559	0	1618	2	819	1951	597	433	205	2483	1	8,744
Units and	49		12		3	424	93	29	532	212	233	248	60	-	1,935



Paul

PLAINTIFF'S EXH. 34-A (CONT.)

1st Week of Period

Week Ending 12/27/50

	30F	30D	37F	37D	45F	45D	57F	57D	25NS	25ND	35NS	35ND	45ND	55ND	25NS	25ND	45ND	45ND	135FAB	37N	TOTALS
Units Prod. This Week							7	3	31	9						532					582
Orders Rec. This Week	14	0	5	50	62	12	4	13	42	10	43	46	290	4	13	235	0	1	0		376
Cancellations Shipped This Week	(3)	(3)							(11)	(5)	(40)	(8)		(19)		(164)					(251)
Shipped Period/Date				-2m 10	2	14	47	128	44	7	55	32		33	17	92			1		482
Ship. Sched. Period/Date				10	2	14	47	128	44	7	55	32		33	17	92			1		482
Production Period/Date			15	35	20	100	20	130	120	60	120	65		40	20	175					920
Prod. Sched. Period/Date							7	3	31	9						532					582
Total Orders Year/Date	151 152	827	973	960	2672	1272	8066	296	6676	1684	258	3297	1658	661	8043	2421	7794	289	29	(94)	47,782
Total Shipped Year/Date	151 152	738	923	957	2928	1249	7844	278	5833	483	139	1347	735	1	8996	2415	9143	360	27	316	44,712
Total Prod. Year/Date	151 152	1418		4008		9916	252	5970	1203	299	1520	983	1	8778	2383	9549	19				46,499
Master Sched. Year/Date		1280	1265	1155	1935	1650	6415	560	2415		1690	1300		9075	3630	9075					41,445
Bal. Orders On Hand		50	40	30	320	73	1079	16	1659	1204	118	1944	961	661	557	191	910	5	2	0	9,820
Comp. Units On Hand		- 0 -		134		1199	34	185	720	160	174	247	- 0 -	365	221	466	5	13	1		3,924



Paul

PLAINTIFF'S EXH. 34-A (CONT.)

1st Week of Period

Week Ending 12/27/50

	30F	30D	37F	37D	45F	45D	57F	57D	25NS	25ND	35NS	35ND	45ND	55ND	25ND	25ND	45ND	45ND	135FAN	97W	TOTALS
Units Prod. This Week							7	3	31	9						532					582
Orders Rec. This Week	14	0	5	50	62	12	4	13	42	10	43	46	290	4	13	235	0	1	0		374
Cancellations	(2)	(2)							(11)	(5)	(40)	(8)		(19)		(162)					(251)
Shipped This Week				-2m		-1m									-5m						
Shipped Period/Date				10	2	14	47	128	44	7	55	32		33	17	92		1			482
Ship. Sched. Period/Date				10	2	14	47	128	44	7	55	32		33	17	92		1			482
Production Period/Date			15	35	20	100	20	130	120	60	120	65		40	20	175					920
Prod. Sched. Period/Date							7	3	31	9						532					582
Total Orders Year/Date	151	827	973	960	2672	1272	8066	296	6676	1684	258	3297	1658	661	8043	2421	7794	289	29	(94)	47,782
Total Shipped Year/Date	151	738	923	997	2928	1249	7844	278	5833	483	139	1347	735	1	8996	2415	9143	360	27	316	44,712
Total Prod. Year/Date	151	1618		4008		9916	252	5970	1203	299	1520	983	1	8778	2383	9549	19				46,499
Master Sched. Year/Date	1280	1265	1155	1935	1650	6415	560	2415			1690	1300		9075	3630	9075					41,445
Bal. Orders On Hand	50	40	30	320	73	1079	16	1659	1204	118	1944	961	661	557	191	910	5	2	0		9,820
Comp. Units On Hand	-0-			134		1199	34	185	720	160	174	247	-0-	365	221	466	5	13	1		3,924



Paul
2nd Week of Period

PLAINTIFF'S EXH. 34-A (CONT.)

STATUS REPORT

Week Ending 1/2/52

	30F	30D	37F	37D	45F	45D	57F	57D	25NS	25ND	35NS	35ND	45ND	55ND	25MB	25MD	45MD	45M2	135PAU	37W	TOTALS	
Units Prod. This Week									29	14			330								373	
Orders Rec. CANE This Week NET				(1)					(6)		(40)			(1)							(40)	
	14		15	23	6	103	3	50	289	20	60	57	90	38	2						770	
Shipped This Week	21	2	12	51	6	48	4	47	55	45	44	45	57	20	2						499	
Shipped Period/Date	28	5	19	60	15	76	5	76	106	58	83	90	116	33	6		4				780	
Ship. Sched. Period/Date	40	30	50	50	50	120	10	120	500	120	500	300	270	100							2240	
Production Period/Date									194	14			735								943	
Prod. Sched. Period/Date									220	14			850								1086	
Total Orders Year/Date	151	547	571	631	1264	620	2508	224	3097	14954	2553	10514	5433	5631	1723	171	(128)	(310)	4	1	2	50,022
	152	14		12	20	4	12		21	32	15	48	21	39	4							242
Total Shipped Year/Date	151	991	542	677	1333	688	3139	201	4095	13816	2317	10362	4900	5120	1357	545	29	873	(2)	10	2	50,595
	152	13	1	9	17	25	3		31	19	30	17	25	18	12							220
Total Prod. Year/Date	151	1401		1999		2999		137	4477	14130	2391	10334	4696	5889	2097		130					51,482
	152																					0
Master Sched. Year/Date		15	20	20	30	25	60	10	55	250	60	225	175	135								1130
Bal. Orders On Hand		19	42	17	237	32	423	14	489	2155	221	1856	1298	1195	344	1						8345
Comp. Units On Hand		453		98		913		27	465	930	234	81	23	750	728	6	9	35		2		4747

COMMENTS: Inventory Adjustments as follows: 30FD-1; 37FD-4; 45FD-2; 57FD-5; 57D-1; 25NS-3; 25ND-4; 35NS-4; 35ND-2; 25MS-3; 45MD-8; 55ND-1; 45ND-8.



PLAINTIFF'S EXH. 34-A (CONT.)

STATUS REPORT

WEEK ENDING JANUARY 2, 1953

SECOND WEEK OF PERIOD	30F	30D	37F	37D	45F	45D	57F	57D	60F	60D	25NS	25ND	35NS	35ND	45ND	55ND	25 WS	25 WD	45 WD	135 FA	TOTAL
Units Prod. this Week															608						608
Orders Rec. this Week						(12)		(22)			(51)	(7)	(51)	(62)	(13)	(104)					316
Shipped this Week	25	5	3		11	28		(20)	2	13	1454	97	403	111	208	11					2351
Shipped Period/Date			1		12	80		2		10	352	86		1	185	72					801
Ship. Sched. Period/Date			4	2	37	170		2	4	65	837	114	3	94	201	134					1667
Prod. Sched. Period/Date	30	20	30	50	40	110			10	100	540	60	600	300	260	190					2340
Prod. Sched. Period/Date											544	199			670						1413
Prod. Sched. Period/Date											554	200			800						1554
Total Order Year/Date	752	660	778	1457	732	3394	67	1646	18	673	21157	2753	15221	8926	8048	4590	48	7	40		70967
Total Shipped Year/Date	677	587	728	1361	654	3158	61	2119		371	15938	2258	12232	7918	7035	3676	4	25	10		58762
Total Prod. Year/Date	801		1999		3329		40	1655		606	15377	2713	12131	7956	6667	2998					55702
Master Sched. Year/Date	15	10	15	25	20	55			5	50	270	30	300	150	130	95					1170
Order On Hand	93	80	64	105	96	376	1	26	21	289	7130	629	5199	2138	2026	1327					19620
Comp. Units On Hand	93	82	64	105	96	395	1	26	21	291	7162	629	5199	2138	2026	1328					19656
Comp. Units On Hand	4		27		452		6	31		232	353	168	9	75	491	54	11	34	27	2	1976





PLAINTIFFS EXH. 34-A (CONT.)

2nd Week of Period

STATUS REPORT

Week Ending 12-31-53

	30F	30D	37F	37D	45F	45D	57F	57D	60F	60D	25NS	25ND	35NS	35ND	45ND	55ND	38 FD	50 F D	25 WS	25 WD	45 WD	TOTAL	
Units Prod. This Week													115			18		270				403	
CANC. Orders Rec.											(2596)	(1)	(994)	(8)	(143)	(1)						(3,743)	
This Week NET	2	4	3	3	4	15				9	(2527)	30	(406)	46	(131)	16						(2,932)	
HOLLY Shipped	3	1	5	3	4	15				11	90	32	64	49	17	26						320	
This Week WAREHOUSE											1											1	
Shipped Period/Date	17	14	7	13	7	22			4	24	223	45	150	114	74	42						756	
Ship. Sched. Period/Date	30	20	30	40	36	64			20	100	490	90	410	210	290	160						1,990	
Production Period/Date													115			18		698				831	
Prod. Sched. Period/Date													500					800				1,300	
Total Orders Year/Date	466	628	442	1034	408	1770		9	248	3464	12511	2252	15651	9031	8276	4872	23	16	71	57	2	39	61,270
HOLLY Total Shipped	556	669	486	1051	487	1976	(2)	27	255	2364	14763	2261	12130	8778	6639	3674	23	16	48	(2)	24	56	223
Year/Date WAREHOUSE											134	92	167	109	119	156							777
Total Prod. Year/Date	1981		2201		2468				4041	18596	2871	14439	10242	7960	5981	100	956					71,836	
Master Sched. Year/Date	711	498	773	1335	1059	2620			477	3758	16256	2678	14916	7984	7614	5295							65,964
Bal. Orders On Hand	11	26	15	45		216				1402	4625	378	8236	2252	3443	2259		14	6		1	22,929	
HOLLY Comp. Units	768		700		463		4	3	1660	4034	707	1669	1486	1544	2160	78	883	16	38	9	16	222	
On Hand WAREHOUSE											227	44	382	68	75	149							945



PLAINTIFF'S EXH. 34-A (CONT.)

Issued 1/10/55

MONTHLY MODEL REPORT - ALL ZONES

HOLLY MANUFACTURING COMPANY

Month of December, 1954

THIS MONTH				YEAR TO DATE			
Orders			Shipments	Orders		Shipments	Backlog
Actual	Canc.	Net	Over or (Under) Plan	Model	Net	Actual Over or (Under) Plan	Actual Variance from 1st of Year
38		38	19	30F-32F	411	386	36
104		104	53	30D-32D	464	414	76
66		66	37	37-38F	518	487	56
115		115	79	37-38D	905	875	65
45		45	33	50F	391	372	19
164		164	103	50D	1,265	1,360	135
27		27	14	60F	222	206	18
651		651	191	60D	2,730	2,610	1,520
1210		1210	529	TOTAL STUBBY	6,906	6,710	1,925
913	8	905	1476	250-S - 251-S	20,095	15,535	9,193
337	3	334	289	250-D - 251-D	2,970	2,354	997
1354	2	1352	1519	350-S - 351-S	23,453	19,279	12,402
473	4	469	742	350-D - 351-D	10,801	10,168	2,889
665		665	661	500-D - 450-D	9,662	8,668	4,437
173	37	136	327	570-D - 451-L	7,354	5,402	1,218
3915	54	3861	5014	TOTAL WALL	74,335	61,406	34,166
28		28	48	75-UF			278
4		4	6	105-UF	531	205	48
32		32	54	TOTAL FAU	531	205	326
2		2	2	OBSOLETE MODELS	37	42	2
5159	54	5105	5599	GRAND TOTALS	81,809	65,363	36,419
100		100	126	CE2	783	723	60
131		131	210	CE4	3,987	2,293	1,869
1181	2	1179	1144	CE5	13,702	13,954	1,709
400	1	399	475	CE7	5,292	5,299	830
53		53	53	CE8 & 14A	287	286	-
887		887	657	CE9 & 13	3,874	3,553	445
105		105	103	CE10 & 15A	767	761	9
129		129	153	CE12 & 17	935	899	10
2986	3	2983	2921	TOTAL CONTROLS	29,627	27,768	4,932

Distribution: Stan Fred Don K.
 Paul John D. Earl
 Bob Jim C. Scotty

PLAINTIFF'S EXHIBIT No. 35

COMPUTATION

HOLLY WALL HEATER ORDERS

UNITS

Model	1950	1951	1952	1953	1954
25WS.....	8,043	171	48	57	....
25WD.....	2,421	(128)	7	2	....
37W.....	(94)	2	....	....	....
45W2.....	289	4	....	....	....
45WD.....	7,794	(310)	40	39	....
Subtotal Old Style Models..	18,453	(261)	95	98	....
25NS.....	1,684	14,956	21,157	12,511	20,095
25ND.....	258	2,553	2,753	2,252	2,970
35NS.....	3,297	10,518	15,221	15,651	23,453
35ND.....	1,658	5,433	8,926	9,031	10,801
45ND.....	661	5,631	8,048	8,276	9,662
55ND.....	....	1,723	4,590	4,872	7,354
Subtotal New Style Models..	7,558	40,814	60,695	52,593	74,335
Grand Totals.....	26,011	40,553	60,790	52,691	74,335

PLAINTIFF'S EXHIBIT No. 36

COMPUTATION

HOLLY WALL HEATER SHIPMENTS

UNITS

Model	1950	1951	1952	1953	1954
25WS.....	8,996	545	4	(2)	....
25WD.....	2,415	29	(25)	....	....
37W.....	316	2	....	....	....
45W2.....	360	(2)	....	....	....
45WD.....	9,143	873	10	24	....
Subtotal Old Style Models..	21,230	1,447	(11)	22	....

Plaintiff's Exhibit No. 36—(Continued)

Model	1950	1951	1952	1953	1954
25NS.....	483	13,816	15,938	14,763	15,535
25ND.....	139	2,317	2,258	2,261	2,354
35NS.....	1,347	10,362	12,232	12,130	19,279
35ND.....	735	4,900	7,918	8,778	10,168
45ND.....	1	5,120	7,035	6,639	8,668
55ND.....	....	1,357	3,676	3,674	5,402
<hr/>					
Subtotal New Style Models..	2,705	37,872	49,057	48,245	61,406
Grand Totals.....	23,935	39,319	49,046	48,267	61,406

PLAINTIFF'S EXHIBIT No. 37

COMPUTATION

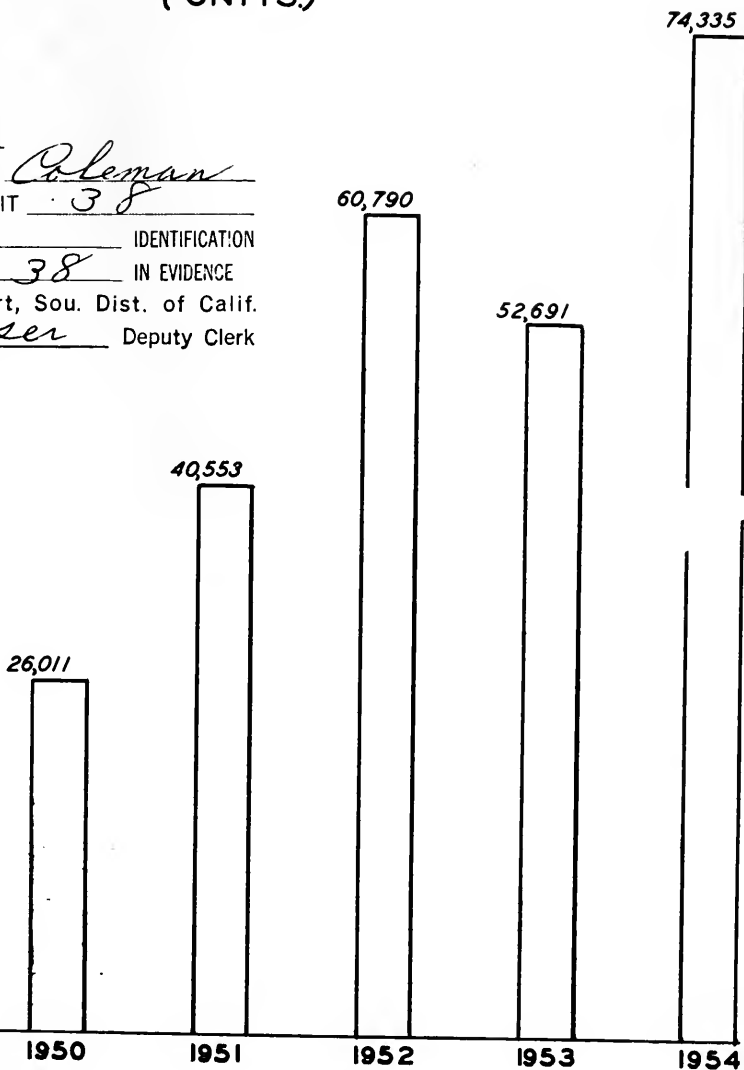
HOLLY WALL HEATER BACKLOG

UNITS

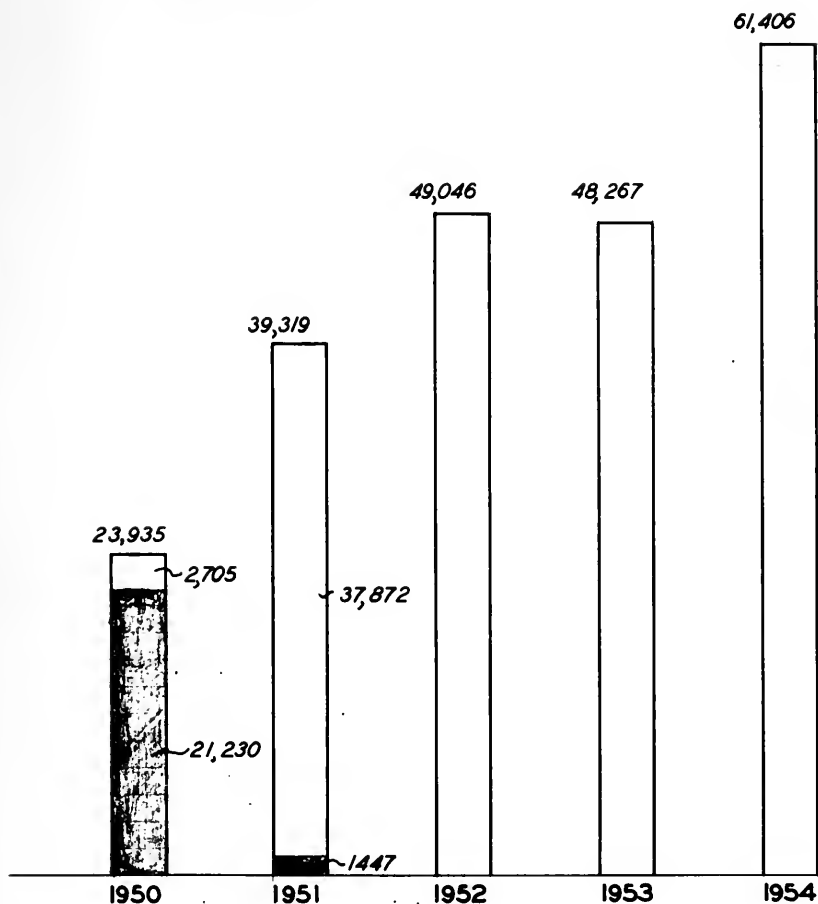
Model	1949	1950	1951	1952	1953	1954
25WS	1,951	557	1	....	6	....
25WD	597	191	....	....	....	....
37W.....	433	....	....	....	....	....
45W2.....	205	5	....	....	....	....
45WD	2,483	910	....	....	1	....
<hr/>						
Subtotal Old Style						
Models	5,669	1,663	1	....	7	....
25NS.....		1,204	2,155	7,150	4,625	9,193
25ND.....		118	221	629	378	997
35NS.....		1,944	1,856	5,199	8,236	12,402
35ND.....		961	1,298	2,138	2,252	2,889
45ND.....		661	1,195	2,026	3,443	4,437
55ND.....		....	344	1,327	2,259	4,248
<hr/>						
Subtotal New Style						
Models		4,888	7,069	18,469	21,193	34,166
Grand Totals.....	5,669	6,551	7,070	18,469	21,200	34,166

HOLLY ORDERS FOR WALL HEATERS (UNITS.)

15886
illy vs. Coleman
EXHIBIT 38
No. 15 IDENTIFICATION
No. 38 IN EVIDENCE
District Court, Sou. Dist. of Calif.
Hooser Deputy Clerk



HOLLY WALL HEATER SHIPMENTS (UNITS.)



Legend

☐ = NEW TYPE

☒ = OLD TYPE

Case No. 15886

Holly vs. Coleman
Plf's EXHIBIT 39

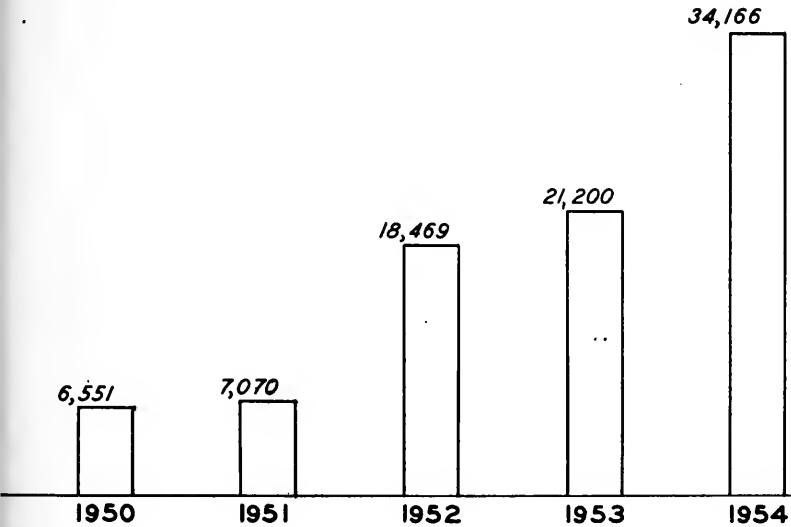
Date 1/20/55 No. 39 IDENTIFICATION

Date 1/20/55 No. 39 IN EVIDENCE

Clerk, U. S. District Court, Sou. Dist. of Calif.

R. Hooser Deputy Clerk

HOLLY WALL HEATER UNFILLED ORDER BACKLOG - UNITS AT END OF YEAR



Case No. 15886
Holly vs. Coleman
Plp's EXHIBIT 40
 Date 1/20/55 No. 40 IDENTIFICATION
 Date 1/20/55 No. 40 IN EVIDENCE
 Clerk, U. S. District Court, Sou. Dist. of Calif.
P. D. Hooper Deputy Clerk

PLAINTIFF'S EXHIBIT No. 42

COMPUTATION

TOTAL NATIONAL WALL HEATER SHIPMENTS
UNITS

1950	212,366	Oil & Gas Wall Furnaces
1951	6,595	Oil Wall Furnaces
	198,891	Gas Wall Furnaces
	<hr/>	
	205,486	Total Wall Furnaces
1952	10,561	Oil Wall Furnaces
	250,160	Gas Wall Furnaces
	<hr/>	
	260,721	Total Wall Furnaces
1953	15,285	Oil Wall Furnaces
	314,987	Gas Wall Furnaces
	<hr/>	
	330,272	Total Wall Furnaces
1954	21,526	January Total Wall Furnaces
	20,623	February
	21,968	March
	23,797	April
	23,307	May
	30,571	June
	28,717	July
	35,308	August
	40,501	September
	45,010	October
	<hr/>	
	291,328	10 Months Total Wall Furnaces
	291,328	10 Months 1954 Actual Wall Furnace Shipments
	58,266	2 Months at Average 1954 Level
	<hr/>	
	349,594	Estimated 1954 Total
	Use 350,000	

Note: This is highest of three methods of computation: (a) 10 months actual for 1954 plus November 1953 and December 1953 actuals gives estimated total of 341,884 units. (b) 10 months actual for 1954 plus November 1953 and December 1953 actuals corrected by 7% that 1954 10 months actual exceeds 1953 10 months actual gives estimated total of 345,423 units.

PLAINTIFF'S EXHIBIT No. 43
DATA ILLUSTRATING COMMERCIAL SUCCESS OF NEW
TYPE HOLLY WALL HEATERS

Year	*Total National Wall Heater Shipments Units	Holly Wall Heater Shipments Units	% of National Market	Holly Wall Heater Orders Units	Holly Backlog End of Year Units
1949.....	....	....	....	....	5,669
1950.....	212,366	**23,935	11.3	26,011	6,551
1951.....	205,486	***39,319	19.1	40,553	7,070
1952.....	260,721	49,046	18.8	60,790	18,469
1953.....	330,272	48,267	14.6	52,691	21,200
1954.....	† 350,000	61,406	17.5	74,335	34,166

* Figures from Bureau of Census, U. S. Dept. of Commerce

** 2,705 new type, balance—old type

*** 37,872 new type, balance—old type

† Based on 10 months reports; last 2 months estimated at average 1954 monthly level

DEFENDANT'S EXHIBIT "Q"

In the United States District Court for the Southern District of California, Central Division

[Title of Cause No. 15886-WM.]

* * * * *

DEPOSITION OF WARREN BLAZIER, JR.

of lawful age, having been called as a witness on behalf of the defendant, and being by me first duly examined, cautioned and solemnly sworn to testify the truth, the whole truth and nothing but the truth, deposes and says:

Direct Examination

Q. (By Mr. Dawson): State your name, age, education and occupation, and address.

A. My name is Warren Blazier, Jr. I am 30 years of age. I reside at 1447 North Yale Avenue, Wichita, Kansas. I have an Engineering Degree from the University of Kansas, also a Bachelor of Science in Physics from that same school. I graduated in 1949. I have three years of experience with the Boeing Airplane Company, Wichita, Kansas, as a Research Engineer, and I have been with the University of Wichita Foundation for Industrial Research since May 15, 1952.

Q. What is your present occupation?

A. I am Assistant to the Director of the University of Wichita Foundation for Industrial Re-

* Page numbers appearing at top of page of original Reporter's Transcript of Record.

Defendant's Exhibit "Q"—(Continued)
(Deposition of Warren Blazier, Jr.)

search; also, I am a Research Physicist with that organization.

Mr. Christie: May we have the record show that the heaters were turned off at this point.

Q. (By Mr. Dawson): Were you requested by the Coleman Company to make some tests in connection with Coleman wall heaters? [28]

A. Yes, I was.

Q. Were heaters supplied to you by the Coleman Company? A. Yes.

Q. What were these heaters?

A. We were supplied with two Model 67 single wall heaters; one Model 68 rear outlet heater, and one Model 69 dual wall heater.

Q. Were these heaters installed by you?

A. Yes.

Q. What room are we now in?

A. We are in the North Laboratory of the Wichita Foundation for Industrial Research.

Q. Were these heaters installed in this room?

A. Yes.

Q. Do you have pictures, photographs which show the various stages of installation of these units? A. Yes, I do.

Q. I ask the reporter to mark for identification a book containing photographs, as Defendant's Exhibit A, for identification.

(The instrument referred to was marked Defendant's Exhibit A, for identification.)

Q. Now, referring to this book, state whether or

Defendant's Exhibit "Q"—(Continued)

(Deposition of Warren Blazier, Jr.)

not there is contained in this book photographs showing the various [29] stages of installation.

A. Yes, this book contains a complete set of photographs showing the various stages of installation of these units.

Q. Now, will you take page 1, and describe what appears on this page?

A. The pictures on page one show the two by four stud space construction used as a start of the installation for these four units. The top picture is the front view; the bottom picture is the rear view. With reference to the top picture, from left to right, the first unit is a single wall Model 67 heater; the second unit is also a single wall heater, Model 67.

Q. The third?

A. The third unit is the rear outlet heater, Model 68, and the fourth unit is the dual wall heater, Model 69. In the lower picture these same heaters are shown as a rear view, but their order from left to right is reversed with respect to the picture above.

Q. These pictures show the first stage of installation, where the heaters are secured between studs?

A. That is correct.

Q. What is shown on page 2?

A. Page 2 shows the second construction stage for which lath was attached to the studs to support the wet-wall plaster construction which was to follow. The top picture is the front view, the bottom picture is the rear view. With [30] respect to the

Defendant's Exhibit "Q"—(Continued)

(Deposition of Warren Blazier, Jr.)

top picture the units, from left to right are, (1) Single Wall Heater, Model 67, (2) Single Wall Heater, Model 67, (3) Rear Outlet Heater, Model 68, and (4) Dual Wall Heater, Model 69. The bottom picture is the rear view of the same heaters shown in reverse order with respect to the picture above.

Q. Now, turn to page 3, and state what the photographs there show.

A. Page 3 shows the progress of the test wall at the completion of the plaster work done on it. The top picture shows the wet-plaster type construction in a front view and the bottom picture shows the wet-plaster construction in a rear view, with the additional provision for glass inspection windows on all of the units, with one continuous window for inspection of the operation of one of the single wall heaters, Model 67.

Q. What was the structure of the model to the right of the glass panel model?

A. This was typical wet wall construction.

Q. Now, turn to page 4 and describe what is shown in these photographs.

A. The pictures on page 4 are the finished front views of the test wall. The top picture shows the finished installation of the four units. The bottom picture shows the same finished installation but with the addition of the blower [31] attachment on the single wall heater with the smooth glass-back panel. This blower attachment can fit on any one of these units shown in the picture.

Defendant's Exhibit "Q"—(Continued)

(Deposition of Warren Blazier, Jr.)

Q. Now turn to page 4 and state what these photographs show—page 5, I mean.

A. On page 5, the picture at the top shows the finished rear view of the test wall. It shows the installation of the glass inspection panels and also the metalbestos flues which were placed at the stack outlet of the heaters. The picture at the bottom of the page shows the experimental test setup for evaluating the total economizer air flow by the carbon dioxide dilution technique. At the left of this picture the instrument is a wet test meter used to measure accurately the quantity of carbon dioxide drawn in to the economizer. The apparatus at the right—

Mr. Christie: That is objected to as stating a conclusion with respect to accuracy.

A. (Continuing): The apparatus at the right is a laboratory-type-orsat analyzer. This apparatus was used to measure the amount of carbon dioxide in a sample of gas, by this I mean an air-carbondioxide mixture drawn from the economizer.

Q. Are you familiar with the operation of both of these test devices.

A. I am familiar with the application of the technique. The orsat analyzer should be handled by an experienced chemist, [32] and when these tests were conducted an experienced chemist did the analysis.

Mr. Christie: Objected to as unresponsive to the question.

Defendant's Exhibit "Q"—(Continued)
(Deposition of Warren Blazier, Jr.)

Q. Who did the analysis?

A. Dr. Luther Lyon.

Q. Now, will you turn to page 6, and state what this shows?

A. The picture on page 6 shows two things. First, it shows an air-stop flange which is provided at the top of the lower box to stop air flow which has a tendency to move up between the stud spaces of the lower box.

Mr. Christie: That is objected to again as unresponsive and a statement of a conclusion. I would ask the witness to confine his remarks, unless he is to be qualified as an expert, Mr. Counselor. I think he should confine himself to facts. He continually injects conclusions and hypothesis into his testimony.

Q. Now, will you turn to page 7 and state what is shown on that page?

A. Page 7 shows the air flow characteristics of the single wall heater, Model 67, which was installed with a wet plaster back wall.

Mr. Christie: Objected to. Under the best evidence rule, the photograph speaks for itself. [33]

Q. What operation is being made there in the photograph?

A. The picture on the left shows the insertion of smoke at the economizer inlet; shows the smoke being drawn in at the economizer inlet, and at the top you may see the smoke emerging from the economizer outlet.

Defendant's Exhibit "Q"—(Continued)

(Deposition of Warren Blazier, Jr.)

Q. And the photograph on the right?

A. This shows smoke being allowed to be drawn into the heater from the base and it shows that the discharge of this smoke is from the main grille at the top of the lower box.

Q. Now, on page 8, what is shown there?

A. Page 8 demonstrates the use of the blower attachment with the Model 67, single wall heater. The picture on the left shows smoke being drawn into one of the blower inlets and being discharged at the blower outlet. The picture on the right demonstrates that reverse flow occurs in the economizer when blower operation is added. The smoke is being drawn in the economizer grille and is being discharged at the blower outlet.

Q. Now turn to page 9 and state what is shown in these photographs.

A. The pictures on page 9 are similar to those seen before except that in this case these tests were conducted on a Model 67, single wall heater, having a smooth glass back panel. The picture on the left shows smoke being drawn into the heater at the base and being discharged from the, [34] from the main outlet grille of the lower box. The picture on the right shows smoke being drawn into the economizer inlet provided on the front of the heater and being discharged at the economizer outlet.

Q. Now, turn to page 10, and state what the photographs there show.

A. The photographs on page 10 demonstrate

Defendant's Exhibit "Q"—(Continued)
(Deposition of Warren Blazier, Jr.)

again the addition of a blower unit to the single wall heater—this is the single wall heater with the smooth glass back wall. The picture on the left shows smoke being drawn into one of the blower inlets and being discharged at the blower outlet. The picture on the right demonstrates the reverse flow in the economizer when blower operation is added. It shows smoke being drawn into the economizer grille and being discharged at the blower outlet.

Q. Now, turn to page 11 and state what the photographs there show.

A. The photographs on page 11 show the additional features of the Model 68, rear outlet heater. The rear outlet heater has a grille on the back which may be seen in the picture on the left. The grille is separated by a divider plate which is also visible. At the top an area above this divider plate serves as an economizer inlet, and this photograph shows smoke being drawn into the economizer inlet from the grille at the back of the rear outlet heater. [35] The picture on the right shows this smoke being discharged from the economizer grille on the front of the installation.

Mr. Dawson: I believe this would be a good time to stop for lunch.

(Whereupon, and at 12:05 p.m., January 5, 1954, the taking of this deposition was recessed, and at 1:17 p.m., the same day, the taking of the deposition was resumed, with all parties

Defendant's Exhibit "Q"—(Continued)

(Deposition of Warren Blazier, Jr.)

present as before, the witness Warren Blazier, Jr., being further questioned, as follows:)

Q. (By Mr. Dawson): Will you next take up page—did you finish 11? A. I think we did.

Q. Will you next turn to page 12, and state what the photographs on this sheet show?

A. The photographs on page 12 show the air flow characteristics of the rear outlet heater when smoke is inserted at the air inlet at the base of the heater and demonstrates the discharge of the smoke from the main outlet of the lower box on the front grille and also the rear outlet connection to the lower box on the rear wall. This shows again that the area below the divider plate on the rear outlet grille is a discharge grille.

Q. When you returned from lunch just a few minutes ago, did you start the fires in the heaters 67 with the plaster [36] backing and the glass backing? A. Yes, I did.

Q. Now, will you turn to page 13 and describe what is shown in the photographs on this page?

A. The pictures on page 13 demonstrate the air flow characteristics of the Model 69 dual wall heater. In the picture on the left, smoke is being drawn in through the inlet grilles at the base of the heater on either side of the test wall, and smoke is being discharged from the main outlets for the lower box on either side. The picture on the right shows the smoke discharge flow from the economizer when smoke is allowed to be drawn in through both of the

Defendant's Exhibit "Q"—(Continued)

(Deposition of Warren Blazier, Jr.)

economizer inlet grilles at the top of the heater casing on either side of the test wall.

Q. What means is shown in these photographs for supplying the test smoke?

A. The test smoke for the photograph of the dual wall heater was produced by using titanium tetrachloride. There were two wands made of wire and string, the string end of the wand was inserted in titanium tetrachloride, the smoke is produced by hydrolysis, where it produces—where the products of hydrolysis are hydrochloric acid and titanium dioxide, which is a very dense, white smoke.

Q. Did you use some other means in making some of the tests shown in the photographs for producing smoke? [37]

A. Yes. In other sets of photographs we used a smoke generator which was constructed as a cylinder which was filled with a mixture of oil and rags, was set afire and a stream of air kept flowing through the generator to produce the dense smoke from this type of generator. We used this type of generator for most of our photographic technique since the smoke that it produced made it much simpler to photograph the effect. We prefer to use the titanium tetrachloride smoke generator for most of our observation tests because the smoke vapor from this generator is not nearly as dangerous as the carbon monoxide concentration in the smoke from the other generator.

Q. Now I am going to ask you to make some

Defendant's Exhibit "Q"—(Continued)

(Deposition of Warren Blazier, Jr.)

tests on the Models 67, the one model being the one having a plaster backing and the other having a glass backing. But before making these tests, tell me what is the B.T.U. input for these models?

A. The American Gas Association's specification for these heaters, these two single wall heaters, is 35,000 B.T.U. per hour input. We are putting in 35,000 B.T.U. per hour to each of these heaters. We have a calorimeter technique which allows us to determine the heating value of the natural gas in our laboratory and we are using an American Meter Company wet-test meter to monitor the volume of flow of this natural gas to these heaters. The volume rate of [38] flow is adjusted to give the 35,000 B.T.U. input to the units, based upon the heating value of our natural gas today.

Q. Will you now check the Model 67 with the plaster back and determine whether there has, whether this is sufficiently heated to carry through your first test? A. Yes.

Q. Will you take the titanium tetrachloride wand and have this applied to the bottom of the Model 67 with the plaster back which you have just now referred to. Now, will you state what you observe under these conditions?

A. I observe that smoke from the titanium tetrachloride generator is being drawn in the lower inlet of the heater, near the floor. I observe that smoke is being discharged from the outlet grille provided for the lower box. I also observe that recirculation is

Defendant's Exhibit "Q"—(Continued)

(Deposition of Warren Blazier, Jr.)

occurring where smoke that is coming out of the main outlet grille for the lower box is being drawn into the inlet grille for the economizer which is located immediately above. I observe smoke being discharged from the economizer in small quantity.

Q. Now will you examine the rear side of the Unit 67, with plaster backing, and state whether or not you observe smoke coming up the back side of the unit.

A. I do not observe any smoke moving up the back of the unit which comes from flow along the back wall in the lower box. [39] I do see a small amount of smoke which is entering the economizer which I believe is coming from the inlet grille provided on the front.

Mr. Christie: Objected to on the ground of unresponsiveness. Nobody asked the witness to state his beliefs.

Q. State whether or not you observe smoke entering the inlet grille for the economizer.

A. Yes, I do see smoke entering the inlet grille of the economizer on the front.

Q. In the same model that you have been discussing, will you apply the titanium tetrachloride wand to the inlet of the economizer and state what you observe?

A. I observe the smoke is being drawn into the economizer through the economizer inlet grille, and I see a discharge of smoke from the economizer outlet grille.

Defendant's Exhibit "Q"—(Continued)

(Deposition of Warren Blazier, Jr.)

Q. How does the volume of the discharge compare with the intake, as far as you can tell?

A. Well, I find that hard to say. I see or know of no other place the intake volume can go except come out the economizer.

Mr. Christie: I move the answer be stricken as unresponsive.

Q. Now will you look at the opposite side of the unit and state whether you can observe smoke entering the inlet of [40] the economizer from that opposite side.

A. It is very evident that the smoke that is entering the economizer grille from the front is entering the economizer, and looking at it from the back you can see the smoke coming in through this grille and turning and entering the economizer.

Q. Now, will you apply the titanium tetrachloride wand to the bottom of Model 67, which has a glass panel at the rear, and observe and state what you see at the front of the unit?

A. I see smoke being drawn in at the bottom of the heater; I see smoke being discharged from the main outlet of the lower box. I see a small amount of recirculation occurring where some of the smoke that has been discharged from the main outlet grille of the lower box is drawn into the economizer inlet grille directly above.

Mr. Christie: Objected to as stating a conclusion.

A. (Continuing): I see some of this smoke being discharged from the economizer grille.

Defendant's Exhibit "Q"—(Continued)
(Deposition of Warren Blazier, Jr.)

Mr. Christie: That answer is objected to on the same ground.

Q. Now will you observe the rear of the unit with the glass panel and state what you observe?

A. I see that the smoke which comes from the wand placed at [41] the base of the heater on the front takes several paths. The largest part of this smoke is drawn into the inside of the lower box; some of the smoke, I see, circulates around the lower supports for this lower box; some more of the smoke is moving up the back wall between the smooth glass panel and the outside casing of the lower box. The flow up this back wall is concentrated in the center of the lower box; the pattern is widest at the bottom, narrowest at the top; the pattern I would describe as a rapidly converging pattern. At the junction of the economizer and the lower box I see that the smoke takes several paths at this point; one path enters the economizer; a second path that the smoke is taking is one where it spills around the bottom plate, mounting bracket plate, of the economizer, and thence up the back wall of the economizer out to the attic. Still another path that this smoke takes is up between the stud spaces around the economizer; it is allowed to enter this area from below through a series of vent holes provided on the lower mounting bracket of the economizer.

Q. I hand you a sheet entitled "Diagram of Smoke Pattern along glass back wall of Coleman

Defendant's Exhibit "Q"—(Continued)

(Deposition of Warren Blazier, Jr.)

Model 67 Heater", appearing in Defendant's Exhibit A, for identification, and ask you whether or not that diagram or sketch shows the smoke pattern to which you have been referring? [42]

A. Yes, it does. In addition, this diagram also shows what I now observe and that is the smoke is leaving the stud spaces around the economizer through the attic vent at the top of the unit.

Q. State whether or not it is easy to measure the volume of air flowing in such a smoke pattern in the rear of the heater? A. Yes.

Mr. Christie: Objected to as requiring a conclusion, and indefinite in the designation "easy." Let's ask the witness what he did or what he didn't do, and not ask him what's easy.

Q. Go ahead.

A. The technique which we use to evaluate this quantity of flow was as follows: We set up a very dense smoke, using our other smoke generator which provides this blackish smoke so this flow that you see, the pattern of that flow could be observed on the back of this lower box. We photographed that pattern. Then we transferred the pattern from the photograph to a scale and thence to graph paper so that we could determine graphically the average area through which this smoke passes. We took two
along lower box
points ~~in~~ the center section of the ~~economizer~~
where the major flow occurs and used this section, which is thirty inches long, to evaluate the velocity

Defendant's Exhibit "Q"—(Continued)
(Deposition of Warren Blazier, Jr.)

of this pattern. We did this by [43] injecting the smoke in short puffs and timing the transit time of the puff of smoke between our two monitoring points in the test section. We did this many times so that the time which we considered to be the average travel time of the puff of smoke could be considered reliable. The spacing between the back of this heater casing are—excuse me—between the outside of the lower box and the glass wall is approximately three-quarters of an inch—correction, I mean three-eighths of an inch, so since we know the thickness of the pattern and we determine graphically the width of the pattern, we can determine the cross-sectional area of the pattern. The product of the velocity times the cross-sectional area gives us the flow. We determined this experimentally and we found it to be .85 cubic feet per minute at the 35,000 B.T.U. per hour input.

Q. Have you prepared a sketch showing the method used in preparing these calculations?

A. Yes, I have.

Q. I hand you a sheet, appearing at the end of Defendant's Exhibit A, for identification, and ask you if that is the sheet? A. Yes.

Q. Now will you refer to the sheet and describe the steps taken in arriving at those conclusions?[44]

A. On the sheet we have drawn to scale the back wall of the lower box. When we transferred the dimensions to scale from the photograph we took of this pattern up the back, we find that at our test

Defendant's Exhibit "Q"—(Continued)

(Deposition of Warren Blazier, Jr.)

point "B" the width of the pattern is approximately 3.2 inches, and at the bottom of the pattern, the other extreme, our other monitoring point was 5.6 inches. The average width of this pattern we obtained by the average of the two values at the extremes. The velocity measurement, which was based on the 30-inch section between point "A" and point "B", we found that the puffs of smoke took on the average of two seconds to move from point "A" to point "B". The equation shown at the bottom of the graph is the substitution of the data we obtained in the general equation to determine the quantity of flow up the back, and this equation shows the numerical calculation of the 0.85 cubic feet per minute.

Q. Could you have used a more common method for measuring this flow, such as a velometer?

A. Measuring flow of this type is extremely difficult because the character of the flow is random. The use of a velometer in all cases requires some knowledge as to the flow characteristics of the pattern. Secondly, the sensing elements for most commercially available anemometers will not sense a flow as small as the one we are faced with measuring. This technique seemed to me to be the most [45] direct, since the results that we obtained are based upon repetition of this test many times.

Q. Have you determined the total economizer delivery of these units? A. Yes, we have.

Q. How did you determine this?

Defendant's Exhibit "Q"—(Continued)
(Deposition of Warren Blazier, Jr.)

A. We determined this by two techniques. The first was a chemical technique where we inserted a known volume rate of flow of carbon dioxide gas at the economizer inlet grille. We allowed this known rate of flow to be drawn in to the economizer through the economizer inlet grille on the front of the unit. We then drew a sample of the air-carbon-dioxide mixture that we being discharged from the economizer outlet grille. This sample of gas we analyzed with a laboratory type Orsat Analyzer and determined the percentage of CO₂ in the test sample. The dilution of the carbon dioxide in the discharge sample, compared to the quantity of carbon dioxide that was drawn into the economizer at its inlet grille, gives us a direct measurement of the total flow through the economizer.

Q. State whether or not you followed through all of the tests in connection with the making of this delivery?

A. I witnessed all the tests that were conducted by this CO₂ technique.

Q. Was there another method employed as a check? [46]

A. Yes, we employed a second method. In this case we felt we could use an anemometer, since the quality of flow shown up by the CO₂ dilution method showed us that the range which we would be concerned with was within the effective limits of the particular laboratory anemometer we had available.

Defendant's Exhibit "Q"—(Continued)

(Deposition of Warren Blazier, Jr.)

Q. What was the economizer delivery as determined by these methods?

A. Approximately twenty cubic feet per minute.

Q. I will ask the witness to turn off the fires under models 1 and 2, the 67 Models, which he has been referring to, and turn the fire on under Models 68 and 69. What was the total economizer delivery—I am not sure I understand your last answer?

A. Twenty cubic feet per minute.

Q. Now, taking your measurements as to the flow up the back of the economizer in Unit 67 with the glass panel, and comparing that with the total delivery, what percentage of the air fed to the economizer would flow up the back of the lower heater?

A. Based upon the 20 cubic feet per minute total delivery from the economizer, the .85 cubic feet per minute of flow up the back comprises about four per cent of this total flow in the economizer if we are to assume that all of this flow which starts up the back of the unit actually enters the economizer.

Q. From your observation, is that a correct assumption?

A. No, it is not. I have pointed out previously that I see smoke spilling around the economizer plate; I have seen smoke moving up the back wall of the upper box and I have seen some of this smoke moving between the stud spaces of the upper box and I have seen this smoke come out in the attic vent spaces, which means that the quantity

Defendant's Exhibit "Q"—(Continued)
(Deposition of Warren Blazier, Jr.)

of flow which we measured starting up the back wall of the lower box and up to the point of junction of the upper and lower boxes is divided from that point on and only a part of it enters the economizer.

Q. I call your attention to the photograph on Page 6 in Defendant's Exhibit A, for identification, and ask you whether that shows any means for upward flow of air past the outside of the economizer casing?

A. Yes, this photograph shows vent holes which are provided in the lower economizer mounting bracket to provide a space through which any secondary flow may pass through the stud spaces to the attic.

Q. Now, have you checked the conclusions; or, I should say, have you checked the results which you have referred to by any other tests?

A. Yes, we have checked these by two other techniques. The first cross check was an efficiency test on the single [48] wall heater with the smooth glass-back panel. We checked the thermal efficiency of this unit allowing any secondary flow to occur, and then we checked the efficiency after we had stopped off the secondary flow which might have a tendency to occur up the back wall. We were unable to determine any difference in the results of these efficiency tests, which indicated that any flow which might occur, of a secondary nature, was in-

Defendant's Exhibit "Q"—(Continued)

(Deposition of Warren Blazier, Jr.)

significant in considering the efficient operation of the economizer.

Mr. Christie: Objected to as stating a conclusion which the witness is not competent to draw.

Q. Have you anything else to add?

A. Yes. If the efficiency of the economizer depended upon secondary flow, the thermal efficiency technique would have shown up the change in efficiency when we stopped off any path for secondary flow to occur.

Mr. Christie: Objected to further on the ground that this is an answer to a hypothesis which has not been established by any foundation in the testimony.

A. (Continuing): We further checked our results by measuring the economizer discharge temperatures on the two single wall Model 67 installations. The first unit had a rough plaster back wall and we had not observed any secondary [49] flow occurring in this installation along the path up the back of the space between the outside of the lower box and the back rough plaster wall. The second unit has the smooth back, smooth glass wall and we have observed that some secondary flow does exist up the back wall of this unit. We ran tests to monitor the discharge temperatures of the economizers on both units when they were both operating under the same conditions. We found no difference in the discharge temperatures in these two units. If the secondary flow in the unit having

Defendant's Exhibit "Q"—(Continued)
(Deposition of Warren Blazier, Jr.)

the smooth glass wall had been significant we would have detected a temperature difference in the result of the tests on the two units.

Mr. Christie: Same objection.

Q. Now, in making these various tests and calculations, did you use certain equipment which is now here and available? A. Yes.

Q. Are you prepared to repeat these in the presence of plaintiff's representatives, if they wish?

A. Yes, I would be glad to repeat them.

Q. Now, at the front of Defendant's Exhibit A, for identification, are three pages which bear the caption "Summary of Test Results." Who prepared these three sheets?

A. I prepared these sheets.

Q. What do they set out?

A. They describe the results of four tests which we conducted [50] to study the flow characteristics of the economizer on a single wall unit having a glass back wall.

Q. State whether or not you adopted the statements of these three pages as your testimony in this case? A. Yes, sir, I do.

Q. Are the units 68 and 69 now heated to a point where tests may be made upon them?

A. Yes.

Q. I will ask you to have the wand with the titanium tetrachloride applied to the inlet of the lower heater and then state what you observe.

A. I observe the smoke is being drawn in

Defendant's Exhibit "Q"—(Continued)

(Deposition of Warren Blazier, Jr.)

through the opening near the floor at the rear outlet heater. I see smoke being discharged from the main outlet grille of the lower box on the front of the unit. I see smoke being discharged from the outlet grille to the lower box on the rear of the unit. I see recirculation taking place where smoke from the main outlet grille of the lower box is being drawn into the economizer intake grille directly above on the front of the unit. I also see recirculation taking place at the rear outlet where smoke from the discharge of the lower box to the rear outlet is being drawn back into the economizer outlet—correction, to the economizer inlet provided directly above this outlet grille on the rear of the unit. I see smoke coming out of the economizer and I [51] see the recirculation is still taking place.

Q. Does it make any difference in these tests where you place the smoke-forming unit, as far as you can see?

A. We have found in using the titanium tetrachloride we can place it at any point along the bottom of the unit and achieve the same result. In the case of the other smoke generator, where smoke is ejected at a high velocity, we find it necessary to direct the smoke in a right angle so the smoke would be drawn into the unit to remove any effect of injection velocity in the test. But in the case of the generator we are using at the moment, its position is not critical at the base of the unit.

Q. Would you place it along side the unit, along

Defendant's Exhibit "Q"—(Continued)
(Deposition of Warren Blazier, Jr.)

side the entrance to the unit, to see whether that makes any difference, and then observe the results.

A. I have placed it along side the entrance and raised it to a point about three inches off the floor, and I see no change in the effects that I have just described. Smoke is still leaving the main outlet grille of the lower box on the front and also the outlet grille provided for the lower box provided on the rear. Recirculation is still occurring where smoke from the main discharge stream from the lower box is being sucked in the economizer through the economizer inlets provided on the front of the unit, as well as the economizer inlet provided on the back of [52] the unit.

Q. Now, will you place the wand at the top of the first unit, over the intake for the economizer, and state what you observe.

A. I observe that smoke is being sucked in to the economizer through the economizer inlet grille, and I see smoke enters this grille and I see it being discharged at the economizer outlet.

Q. Is the discharge a substantial volume of smoke?

A. The discharge is much more dense in appearance than the discharge I was referring to when we were describing the recirculation.

Q. Now, will you place the wand at the bottom of Model 69, the dual wall heater, and state what you observe.

A. I observe smoke being drawn in through one

Defendant's Exhibit "Q"—(Continued)

(Deposition of Warren Blazier, Jr.)

of the main inlets at the base of the dual wall unit. I see smoke being discharged from the outlet grilles of the lower box on both sides of the test wall. I see recirculation occurring where the discharged smoke from the stream from the lower box is being drawn into the economizer through the economizer intake grille at the top of the unit on both sides of the wall. I see a small amount of smoke leaving the economizer grille.

Q. Will you now apply the wand to the intake to the economizer above the lower heater and state what you observe. [53]

A. I see smoke being drawn in through one of the two economizer inlet grills provided on this dual wall unit. I see that smoke being discharged at the economizer outlet of the unit.

Q. Now I want to call your attention again to Defendant's Exhibit A, for identification, and more particularly to page 7. State whether or not the photographs on page 7 indicate what you have observed today in connection with the operation with Number 67 Heater, having a rough plaster background.

A. Yes, they do represent what I have just observed.

Q. I think I will ask you to cut off the heaters 68 and 69 and turn on the two 67 heaters. Now, I call your attention to the photographs on page 9 and ask you whether the photographs here accurately show what you have observed in tests today

Defendant's Exhibit "Q"—(Continued)
(Deposition of Warren Blazier, Jr.)

on the single wall heater No. 67 with this glass back wall? A. Yes.

Q. Now I call your attention to page 11, and ask you whether the tests performed here today, as you have observed them, on the rear outlet heater, Model 68, show the results set out in these photographs? A. Yes, they do.

Q. Referring to page 12 of the book marked Defendant's Exhibit A, for identification, state whether these photographs [54] show accurately the results of tests which you have made today on Model 68. A. Yes, they do.

Q. Referring to page 13 of this book, state whether the photographs accurately show results which you have observed today in making the tests on this Model 69. A. Yes, they do.

Q. Will you demonstrate the use of the blower on Model 67, having a rough plaster back wall, and state what you observe, applying the wand to the bottom of the unit?

A. The blower is now operating as an attachment to the single wall heater, Model 67, having a rough plaster back wall. With the wand placed at the base of the heater, I see smoke being drawn into the lower box; I see smoke being discharged at the main outlet grille of the lower box and being disturbed in pattern by the air flow from the blower.

Q. Where are you now placing the wand?

A. I am now placing the wand at one of the blower intake grilles. I see smoke being drawn into

Defendant's Exhibit "Q"—(Continued)

(Deposition of Warren Blazier, Jr.)

the blower inlet; I see it being discharged from the blower outlet. I am now holding the wand over the grille which, in the unit without a blower, is an economizer outlet grille. With the blower attachment this outlet grille has now become an economizer inlet grille and smoke is being drawn into the economizer through this grille, and I see it being discharged by the [55] blower at its outlet.

Q. In the first test that you made with the wand at the bottom of the heater, was there any discharge from the economizer?

A. No. We can observe that again—I have observed many times that there is not, and I will do it again. I see no smoke being discharged from the economizer grille.

Q. Now will you place the blower upon the Model 67, with glass panel, and make the observations which you have made with respect to the last Model 67?

A. Yes.

Q. You have now placed the wand under Model 67 with glass panel, equipped with a blower. Now state what results you observe.

A. I see smoke being drawn in through the air intake at the bottom of the heater. I see smoke being discharged at the main outlet grille of the lower box and being blown about by the output of the blower directly above. I see no smoke coming out of the economizer.

Q. Will you now place the wand over the inlet to the fan and state what results you observe?

Defendant's Exhibit "Q"—(Continued)
(Deposition of Warren Blazier, Jr.)

A. I see smoke being drawn into one of the inlets through this blower attachment and I see it being discharged at the blower outlet directly above the outlet grille for the lower box.

Q. Now place the wand over the top opening of the economizer, [56] and state what you observe.

A. I see smoke being drawn into the economizer grille, demonstrating the reverse flow through the economizer when blower operation is added to this single wall unit. The grille, which without the blower is an economizer outlet grille, becomes an economizer inlet grille when the blower is added. I see smoke being sucked in the economizer through this economizer grille. I see it being discharged by the blower outlet.

Q. I call your attention to photographs on page 8 of Defendant's Exhibit A, for identification, and ask you to state whether or not these photographs accurately show the results to which you have just testified? A. Yes, they do.

Q. I call your attention to page 10 of this book relating to the 67 heater with the smooth glass back wall, equipped with the blower, and ask you whether the photographs here accurately represent what you have testified to, your observations here today? A. Yes, they do.

Mr. Dawson: The book which the witness has identified as Exhibit A is offered in evidence as Defendant's Exhibit A.

Mr. Christie: We object on the ground that no

Defendant's Exhibit "Q"—(Continued)

(Deposition of Warren Blazier, Jr.)

proper foundation, no proper identification of [57] photographs has been made.

Mr. Dawson: Right here I wonder if we might stipulate as to the signature of the witness?

Mr. Christie: It is stipulated that the witness may sign the deposition before a Notary.

We would like to have a short recess—I don't know how long it would take in order to familiarize ourselves with this equipment and possibly make some tests on it before we go ahead with the cross examination. This equipment we saw for the first time this morning and we would like to look at it and possibly do some testing work with Mr. Hollingsworth here before we proceed with the examination.

Mr. Dawson: I wonder if we might also cover that part of the testimony taken while the witness was not under oath and omit that part from the record.

Mr. Christie: I would prefer to have it in the record. I want to compare what he testified to the first time with his testimony the second time.

Mr. Dawson: All right. You may cross examine.

Mr. Christie: At this time we would like to have a recess long enough to make this inspection of the apparatus and possibly some tests Mr. [58] Hollingsworth might want to make.

Mr. Dawson: When you make any tests we would like you to make them inter-parties, just as we have made them here.

Defendant's Exhibit "Q"—(Continued)
(Deposition of Warren Blazier, Jr.)

Mr. Christie: You are not naive enough to tell me that you haven't tested this equipment before today?

Mr. Dawson: That's correct, but if you want to make tests I think they should be in the record.

Mr. Christie: I don't see why they should be; I don't know any rule that requires our tests to be made inter-parties any more than a rule which requires you to make all your tests inter-parties. So I enter a very pronounced objection to that proposal.

Mr. Dawson: Let the record show that counsel refuses to have representatives of defendant present in making tests on this apparatus.

(Whereupon, and at 3:00 p.m., January 5, 1954, the taking of this deposition was recessed, and at 4:20 p.m., the same day, all parties being present as before, the witness, Warren Blazier, Jr., was further interrogated, as follows:) [59]

Cross Examination

Q. (By Mr. Christie): Mr. Blazier, you testified you worked for Boeing Aircraft for three years. What did you do there?

A. I worked as a Research Engineer with Boeing Airplane Company. My work consisted of analyzing test procedures used and evaluating various sub-products as means of quality control, of attending conferences with sub-contractors who were

Defendant's Exhibit "Q"—(Continued)

(Deposition of Warren Blazier, Jr.)

doing these tests on products which we were buying.

Q. What kind of products?

A. They varied; the majority of them were electronic in character. The scope was from radar equipment through gasoline tank-full-capacity indicators, airplane weighing devices, temperature control, pressurizing regulators and controls, the general field of electronic equipment purchased by Boeing for installation in the B-47. In addition to that, I maintained close contact with the research laboratories at Wright Field, a division of the Airforce Development Command, where we kept close contact with new developments at Wright Field for inclusion in subsequent models of the B-47 work. In this work I became familiar with a broad variety of test equipment and test techniques as well as application and selection of techniques for tests. [60]

Q. Did you ever work on any heaters while you were at Boeing?

A. Not directly as heaters, no.

Q. Now, what has been your experience here at the institute?

A. With the exception of the first two months that I have been with the University of Wichita Foundation for Industrial Research, I have been engaged almost entirely full time on projects sponsored by the Coleman Company. These projects have all, up to this point, been in the field of heating and distribution of hot air.

Defendant's Exhibit "Q"—(Continued)
(Deposition of Warren Blazier, Jr.)

Q. You have had, then, approximately 16 months' experience in hot air heaters?

A. I have had 16 months' experimental experience with this organization, yes.

Q. And was all that 16 months devoted to work on Coleman heating equipment of one kind or another? A. That is correct.

Q. Does Coleman pay you for this work?

A. No directly, no. Coleman places a project with our organization, we organize and handle the project and bill Coleman as an organization for the cost of the project.

Q. What were your instructions on this job that you have testified about today?

A. We were asked by the Coleman Company to construct a test wall which would meet the requirements for ordinary installation procedures in various types of wall heaters [61] to be built. We were asked to study the flow characteristics in these heaters with particular attention to the operation of their economizer to determine what factors provided for efficient operation of the economizer.

Q. Is this the only wall you built?

A. Yes, this is the only wall that we have built.

Q. Have you ever seen a plaster wall constructed before?

A. Yes, I have. We wrote and got the Los Angeles City Building Code as an aid in seeing what that part of the country did in that type of construction. We called in licensed plasterers to do

Defendant's Exhibit "Q"—(Continued)

(Deposition of Warren Blazier, Jr.)

this work. We did not do the plastering or wire lath application ourselves. We built the two by four studs and called in people who do this as a livelihood to complete the final construction of the units.

Q. Did you observe the plastering?

A. Yes.

Q. And you had previously observed plastering procedures?

A. I have seen my own house plastered.

Q. Did you notice any difference in the way this was plastered, and your own house?

A. The difference I noticed was they used the wire lath construction. The plastering that I have seen myself has been plaster over wood lath.

Q. So this is the only metal lath construction that you ever saw plastered? [62]

A. Yes, it is.

Q. And you have nothing to compare it with, then, in the scope of your own experience?

A. Yes, I do. My associates in this organization were working in close coordination with the people assigned to this project; we had the opinions and experience of other people on our staff who monitored the progress of the project as it went along.

Q. Within your own experience, you have never seen a plaster job done on metal lath until this one was done, isn't that correct.

A. Within my own experience, of actual observation, this is the first I have seen, yes.

Defendant's Exhibit "Q"—(Continued)
(Deposition of Warren Blazier, Jr.)

Q. And so you, yourself, have no basis for comparison as to whether or not this job is standard or otherwise, is that correct?

A. No, I wouldn't agree with that. I feel that I can still rely upon the opinions and advice——

Q. (Interrupting) I am asking you, within your own experience.

A. Well, my experience involves the advice and opinions of the people I work with. Our organization is an integrated organization; we never accept a project by virtue of the merit of one particular person. One of the stipulations, when we accept a project, is that each member of the staff has some sort of responsibility on the project. The [63] coordination of the project is through cooperation of all of the facilities and intellectual abilities and techniques of the whole staff.

Q. Let me ask you—I suppose in the course of your education you read some text books, isn't that true?

A. I have read text books, yes.

Q. Doubtless the man who wrote the text book had some experience, isn't that correct?

A. Either that or he had read other text books.

Q. Would you now say that that experience of a man who told you or whose textbook you read was your own experience? I am asking you to confine this to your own experience.

A. I can't answer your question.

Defendant's Exhibit "Q"—(Continued)

(Deposition of Warren Blazier, Jr.)

Q. Now, who told you how to install these furnaces?

A. We were given the published installation instructions, printed by the Coleman Company, for use of the people in the field in installing their equipment, and we followed these installation instructions.

Q. I hand you a document consisting of ten pages, entitled "How to Install Coleman Gas Wall Heater—Model Nos. 67 & 68", and ask you if that is the document you referred to?

A. I would like to establish it, for there are a series of documents on the same installation procedures.

Q. Well, I am asking the questions. Is this the document you mentioned you followed, or isn't it?

A. It looks similar to the document we used.

Q. Can you produce the document you did follow?

A. Yes, I think we can.

Q. Will you do so?

(Whereupon, counsel for the defendant hands a document to the witness.)

Q. (By Mr. Christie): Counsel has handed you another document consisting of 10 pages, which appears to be the same that I handed you. Is this the document you followed?

A. Yes, sir.

Q. How do you know it was that document you followed when you were unable to tell me this one that I handed you previously?

A. Well, for this reason. I am aware that all

Defendant's Exhibit "Q"—(Continued)
(Deposition of Warren Blazier, Jr.)

installation and operating procedures by any organization is subject to revision; I do not see any revision date on these; I wasn't certain whether the copy that you handed me was of the same revision as the copy which we used to install.

Q. How do you know that the one that has been handed you is that one?

A. Well, this has been handed me as a copy of the one that was given us at the time we installed the units.

Q. Of your own knowledge you do not know whether this is the instruction you followed or not; you are simply relying on the fact that counsel handed it to you, is that correct? [65]

A. Well, I believe this is the document that we used for installation of these heaters.

Q. What is the basis of that belief?

A. The same source for which I just received this document was the source for the first document we used for installing the units.

Q. But you do not recognize the document itself?

A. Certainly I recognize the document. It appears to be the same document we used.

Mr. Christie: I ask that the document which was handed to the witness by defendant's counsel be marked for identification as Plaintiff's Exhibit 1.

(The document was so marked by the reporter.)

Defendant's Exhibit "Q"—(Continued)

(Deposition of Warren Blazier, Jr.) .

Mr. Christie: I ask that the document which I first handed to the witness, which he was unable to identify, be marked Plaintiff's Exhibit 2, for identification.

(The document was so marked by the reporter.)

Q. (By Mr. Christie): Now, I ask you to compare Plaintiff's Exhibit 1 and Plaintiff's Exhibit 2 and tell me if you find any difference in the printed matter of these two exhibits?

A. You want me to read the total printed matter of both exhibits? [66]

Q. If you need to. I want you to tell me whether or not they are the same, and you do anything you find is necessary.

A. Well, there is a simple way to tell—F5465 on this one; they carry the same document number, so I will assume they are the same.

Q. Let's not assume anything. Just tell, just state whether they are the same or not.

A. Yes, they are the same.

Q. But you were unable to tell me when I first asked you whether or not Plaintiff's Exhibit 2 was the set of instructions that you followed, isn't that correct?

A. Plaintiff's Exhibit 2 is the first document you handed me, right?

Q. Yes.

A. Yes, I couldn't tell until I checked the serial numbers at the back of the document to determine

Defendant's Exhibit "Q"—(Continued)
(Deposition of Warren Blazier, Jr.)

if what you had was of a different revision status than what I had.

Q. At that time you didn't have any document before you at all when I first handed you Plaintiff's Exhibit 2?

A. I had no document for comparison.

Q. The document that you did use for comparison purposes was one that was handed you by defendant's counsel, isn't that correct?

A. That is correct. [67]

Q. And you had no independent recollection about either of these two documents, then?

A. To answer whether the document you handed me was identical with the document I used to install these furnaces, I couldn't identify the document unless I had some means for comparing the document that you handed me with the same document number which we used to install these furnaces.

Q. How did you know what that document number was?

A. I know the document which counsel has is similar or the same document as the one we were given to install these heaters. It is the same publication number.

Q. What I am trying to get at, Mr. Glazier, is why you were able to identify the document that counsel for the defendant handed you when you were unable to identify the one I had handed you, that now turns out they are the same documents?

Defendant's Exhibit "Q"—(Continued)

(Deposition of Warren Blazier, Jr.)

A. I can't answer that. I have given you the reasons; I know of no other way to state them.

Mr. Dawson: This line of cross examination is objected to as being repetitive. Counsel called for the production of a document and the document has been produced.

Q. (By Mr. Christie): Is the witness willing to tell that this document, identified as Exhibit No. 1, for identification, is the document he used in preparing and setting [68] up this panel?

A. Yes, this is the document that we were given as an aid in setting this test panel.

Q. I believe you testified that you had tried various positions for the wand in your tests and found that it made no difference?

A. With reference to the position of the wand at the inlet to the heater at the bottom on the front I said that the lateral position of the wand at the outside of the furnace on the front made no difference as far as the character of the flow that we observed in the economizer.

Q. Now I believe you also testified that you took photographs of the smoke pattern at the back of the No. 67 Heater which has the glass running from the top to bottom, is that correct?

A. That is correct.

Q. Can you produce this photograph?

A. Yes.

Q. We would like to see them just a moment.

Mr. Christie: I ask that the photograph which

Defendant's Exhibit "Q"—(Continued)
(Deposition of Warren Blazier, Jr.)

the defendant has just produced be marked as Plaintiff's Exhibit 3 for identification.

(The photograph referred to was so marked by the reporter.)

Q. Mr. Glazier, is this the only photograph that you had, or [69] are there others.

A. By that do you mean is that a print of the only negative that we have?

Q. Correct.

A. Yes, this is the one that we used to determine the shape of our pattern.

Q. Did you take any other pictures of the pattern?

A. We took a multitude of pictures in an attempt to catch, photographically, this pattern. This was the only successful picture.

Q. May we have production of the unsuccessful ones; I would like to see them all.

A. We haven't prints because we inspected the negatives to see if the smoke stream did show up and those negatives were discarded until we did get a negative that did show the stream.

Q. Were those negatives destroyed?

A. I am not sure.

Q. Have you made a diligent search to see whether or not they are available?

A. I haven't made the search because I saw no significance to the negatives. There were problems of not enough exposure time, improper lighting, and various other things.

Defendant's Exhibit "Q"—(Continued)

(Deposition of Warren Blazier, Jr.)

Mr. Christie: Move that the witness' answer be stricken as argumentative.

Q. Do you, or do you not know whether or not these negatives [70] are still in existence?

A. I don't know.

Q. You cannot produce them?

A. I don't know.

Q. How long would it take you to find out?

A. Just a few minutes, I think.

Mr. Christie: May we have a recess while the witness endeavors to produce the pictures.

(Whereupon, a recess of approximately five minutes was taken, after which, all parties being present as before, the cross examination of the witness, Warren Blazier, Jr., continued as follows:)

Q. (By Mr. Christie): Mr. Blazier, you have handed me another photograph, and I ask that it be marked as Plaintiff's Exhibit 4, for identification.

(The photograph referred to is marked Plaintiff's Exhibit 4.)

Q. Now, I ask you whether Plaintiff's Exhibit 3 and 4 are the only photographs that you took of this smoke pattern?

A. Do you mean by this, the only successful pictures?

Q. No, the only pictures. Did you take other pictures, and if so, where are they?

A. We took no other successful pictures. The

Defendant's Exhibit "Q"—(Continued)
(Deposition of Warren Blazier, Jr.)

negatives that were ruined due to improper exposure, reflection from the glass—all of the things involved in determining the [71] photographic technique that would produce the picture that looked the same as what we would observe visibly, of all those negatives these are the only two which we have saved. We took many others which were simply a waste of time.

Q. And what happened to them?

A. They were destroyed.

Q. By a successful picture, what do you mean?

A. This photograph, as I have explained before, was used to show the shape of the secondary flow which, we had observed, moved up the back of the glass wall Model 67 heater. We were trying to achieve a photograph which would outline that shape in such detail to scale its width against the known width of the economizer on a ratio basis. This first one that I handed you was used over the second one which you received. Plaintiff's Exhibit 3 was used in place of Plaintiff's Exhibit 4 because Exhibit 3 was a closer shot which more precisely showed the outline of that smoke pattern.

Q. Now referring to the last page of Defendant's Exhibit A, I ask you whether or not this is a drawing that you made of what you saw in the photograph?

A. This is a drawing that was made from the scale obtained from the photograph, over the 30 inch distance up to the economizer. [72]

Defendant's Exhibit "Q"—(Continued)
(Deposition of Warren Blazier, Jr.)

Q. In other words, the edges of the smoke pattern in the photograph are shown in the drawing, is that correct? A. Would you repeat that?

Q. The edges of the smoke pattern which you identified as, which I identify as upwardly slanting lines in the center of the drawing, connected by the dimension "W", are the same as the outside lines of the smoke pattern as you see in the photograph, Plaintiff's Exhibit 3?

A. The lines shown on the graph are an approximation of the contour of the edge of the smoke pattern in the region that we tested.

Q. What do you mean by an approximation?

A. Well, the edge of your smoke pattern we drew a straight line, which is an approximation of that irregular edge.

Q. So that the slope of the line is, the slope of the lines between the dimension "W" on the drawing and the slope of the lines on the smoke pattern are intended to be the same?

A. They are intended to be similar. We made certain when we drew this graph that we were including all of the area within the boundary of the graph that was filled by smoke in the picture. In any dissimilarity that you may notice, if you do, between what we have drawn on the graph and what you see on the photograph, is of a nature that it would increase the value which we would calculate for flow up the back. It is in the direction which would increase [73] our numerical result.

Defendant's Exhibit "Q"—(Continued)
(Deposition of Warren Blazier, Jr.)

Q. In your calculations which you based upon the graph, on the last page of Defendant's Exhibit A, for identification, any calculations which you made you assumed that the space outside the lines joined by the dimension "W" is dead air space in which no smoke movement occurred?

A. We observed no smoke movement in the space outside of the area that we have shown here, within the region that we had our test section.

Q. Isn't it true that in the calculations you made you assumed that all of the smoke came up through this tapered chimney, if you will, represented by two lines joined by the dimension "W"?

A. That was the only smoke we observed in that region.

Q. That isn't the question I asked you then. Did you not assume in your calculations that all of the gas movement was within this tapered portion which I show marked "X"?

A. Yes, within that section we did not assume; we observed it. It was obvious that within the center of our test section that we were using the only smoke in the cross-section through that area fell between these two lines that we have shown. It was not an assumption; it was an observation.

Q. You used that observed fact, if you will, in your calculations, is that not correct? One of the premises of your [74] calculations of the amount of gas which moved up the back of the heater is that

Defendant's Exhibit "Q"—(Continued)

(Deposition of Warren Blazier, Jr.)

it all moved up through this tapered section "X", isn't that correct?

A. It was not a premise, it was an observed fact that in the test section that we were concerned with all of the smoke existed between the two lines drawn on the graph.

Q. That enters into your equation, does it not?

A. Yes.

Q. How does it enter in?

A. These lines——

Q. Identify them as numbers.

A. The area shown in the center of the graph which you have marked "X" on your copy——

Mr. Christie: I believe he should mark the exhibit, Exhibit A, for identification, if that is all right.

(A drawing in Defendant's Exhibit A, for identification, was marked by the witness.)

Q. You have just marked the drawing. Will you tell me what you have done to it?

A. I have identified the area between the smoke pattern outlines on the graph; I have marked that area between those two lines and bounded by "A" and "B" as Area "X".

Q. Now, will you mark the two outlines of the smoke pattern on the drawing? [75]

A. We will mark line "Y" and line "Z" as the boundary lines for the smoke pattern, and I want to make it clear that the smoke pattern that we are

Defendant's Exhibit "Q"—(Continued)
(Deposition of Warren Blazier, Jr.)

talking about lies within these boundary lines in our test section.

Q. And you observed that the entire gas movement was within the area "X", between the lines "Y" and "Z", is that correct?

A. That is correct.

Q. And that was the basis of the calculation which you made of the amount of gas that traveled up the back of the heater, is that correct?

A. That was part of our calculation, that was part of the technique we used, yes.

Q. Now, did you in your calculation, Mr. Blazier, assume that there was movement up the back of the heater outside the zone "X" but between "Y" and "Z"?

A. It was not necessary to make any assumption of that type since we did not observe any smoke movement outside the test section.

Q. Mr. Blazier, you are an engineer, you are familiar with calculations, I assume. Now, in this calculation, there is—I will phrase it this way: you agree with me, do you not, that in a furnace there is an open space across the back which extends from one two by four to the other two by four, as for example in furnace 67 with a glass panel [76] at the back, is that correct?

A. In the single wall heater with the glass-back wall panel there is a space between the back wall of the lower box and the glass back wall surface.

Q. And does that extend from the point which

Defendant's Exhibit "Q"—(Continued)

(Deposition of Warren Blazier, Jr.)

I show marked "Q" to the point which I shall mark "R" in my drawing and ask you to make similar marks on yours?

A. Would you re-state again what points "Q" and "R" are?

Q. Oh, I am sorry. "Q" is the inside of the heater support, the two by four, as it is shown in your drawing and "R" is a similar support, vertical.

A. There is no support here; here is the edge of the two by four. This is the space.

Q. I am sorry. Will you mark what the open space is on your drawing and mark one side of the open space "Q" and the other side "R"?

A. The open space that I am referring to can't be shown in this view of the drawing and this drawing is not intended to be a true detailed, scaled drawing of all of the brackets and supports of this wall heater. This drawing is simply submitted to get the general outline area that we are discussing and it is not intended to show the construction and installation of the glass panel, it doesn't show the stop-off flanges that are mounted in this space that you want me to identify. [77]

Q. Perhaps I can get at it another way. Will you agree with me, Mr. Blazier, that the area "X" is not the entire open area at the back of the lower box of the heater?

A. Yes, I will agree with that.

Q. And there is additional open space. Now, will you mark in some fashion on the drawing on

Defendant's Exhibit "Q"—(Continued)

(Deposition of Warren Blazier, Jr.)

the last page of Defendant's Exhibit A, for identification, the additional open space at the back of the heater?

A. I can't mark it on this drawing because it is not complete.

Q. You can't even approximate it?

A. I hesitate to approximate it because this is not an engineering drawing; this is merely a sketch.

Q. You can't do it, within the scope of your engineering experience you can't indicate the rest of the open space on the back of this?

A. That is not what I am saying. I am saying that you are asking me to identify the open space, using this drawing as the means of identifying it. I am saying that my engineering experience tells me that I should not mark off areas on a drawing that is not complete, and for that reason I cannot do what you ask.

Q. So you will agree with me that this is not a true representation of the back of the heater?

A. I will not agree with you that it is not a true representation of what we are attempting to show in this particular [78] test.

Q. That is not my question, Mr. Blazier.

Mr. Christie: Mr. Reporter, read the question.

By the reporter:

"Q. So you will agree with me that this is not a true representation of the back of the heater?"

A. This was not intended to be a true representation of the back of the heater. Its only intent

Defendant's Exhibit "Q"—(Continued)

(Deposition of Warren Blazier, Jr.)

was to outline the area which is pertinent to the subject of the test for which this drawing is an expedient.

Q. Let's try to get at it another way, then. I will make a point "M" on my drawing and ask you to make a similar point on yours.

A. That point there?

Q. Yes. Now, is that point "M" in the open space at the back of the heater?

A. Yes, it is.

Q. But in your computations you assumed that there was no movement of air passed that point, isn't that correct?

A. I stated, and I state again, it was not an assumption. I would like to explain why that is not an assumption. The smoke that was used to set up this pattern was generated at the front of the unit at the main air intake for the single wall unit. The smoke which we saw up the back showed the movement of the air flow in the back wall area [79] of this system which occurred under natural causes. If there had been air movement in these other spaces which you are referring to, including the point "M", the air flow which we have been studying with respect to the system operation would have shown a smoke distribution in that area.

Q. Well, now, I am going to ask Mr. Hollingsworth if he will apply smoke to the first of the No. 67 furnaces, which is the one without the entire glass panel, and ask you to observe the point at

Defendant's Exhibit "Q"—(Continued)
(Deposition of Warren Blazier, Jr.)

which Mr. Hollingsworth applies the wand. Now I will ask you if you have observed that point?

A. I observed that you are placing the wand at the point where it is out of the main intake flow of this unit.

Q. It is within the heater at the lower right hand corner, is that correct?

A. It has been placed in the heater at a point beyond the air intake for the unit and has been placed in the lower right hand corner.

Q. Now will you please observe the rear, and will you tell me if you see any smoke passing up in the back of the glass panel?

A. With the wand placed at a point that is out of the main intake for the heater and placed in an area within the stud spaces which is not subject to the flow characteristics and conditions of the unit, I see that you have produced [80] some smoke, yes.

Q. Now, where is that smoke going?

A. Some of it is going in the economizer; I can see some of it spilling over the economizer plates and going on up through, along the economizer wall, to the attic.

Q. But some of it you can see going into the economizer, can you not?

Q. With the wand placed where you have placed it, outside of the——

Q. (Interrupting): Let's not argue about it. Can you see it or can't you?

Defendant's Exhibit "Q"—(Continued)

(Deposition of Warren Blazier, Jr.)

A. With the placing of the wand where you have, I can see some smoke.

Q. Step around to the front and repeat your observations of this morning and see if you can see any smoke coming out of the top grille of the economizer.

A. I see more flow coming out of the main outlet of the lower box than I see coming out of the economizer.

Q. You see smoke coming out of the economizer, do you not?

A. With your wand placed where it is I would expect to see smoke coming out.

Mr. Christie: Would you give us a little more smoke in the same position, Mr. Hollingsworth?

Q. Now, will you again observe the heater and tell me what you see. [81]

A. I see a lot of smoke coming out of the main outlet grille of the lower box and I see very little smoke coming out of the economizer by comparison.

Q. But you do see smoke coming out of the economizer?

A. A small amount with the wand placed where it is.

Q. Do you see any smoke coming out of the top of the grille on the lower case?

A. Do you mean the economizer inlet grille?

Q. I don't know how you identified it; this grille in which you have these small wire places.

Defendant's Exhibit "Q"—(Continued)
(Deposition of Warren Blazier, Jr.)

A. That grille we identify as the economizer inlet grille.

Q. Do you see any smoke coming out of that?

A. I see smoke coming out of the main discharge grille of the lower box; I see it recirculating and entering the economizer inlet grille.

Q. Now, I believe you testified that you installed the heater in accordance with the instructions which you identified as Plaintiff's Exhibit 1 and Plaintiff's Exhibit 2, isn't that correct?

A. We installed as closely as practical limitations would allow.

Q. I call your attention to Page 3, the second column, paragraph No. 6, marked "Fasten the front panel to the heater with screws through the slots on the inside of the panel and into the heater. The front panel should be flush [82] against the wall." Are those the instructions you followed?

A. Yes, they are the instructions we followed.

Q. Now I ask you to inspect the front panel on the several heaters. Referring to the panel on the first of the No. 67 heaters, which is the one with the partial glass panel in the back, I will ask you to inspect the top of the front panel and ask if you find that is flush?

A. It is flush according to building practices.

Q. Now I ask you to inspect the bottom of the same panel and tell me whether or not it is flush.

A. Yes, I would say it is flush.

Q. Now I ask you to inspect the right side,

Defendant's Exhibit "Q"—(Continued)

(Deposition of Warren Blazier, Jr.)

about the middle of the front panel, and tell me whether it is flush.

A. Considering that it is at the sheet metal section that is heated, I would say that it could be classified as flush, yes.

Q. Now I want you to observe that I can put my pencil in there for a substantial distance. Would you estimate the gap that I spanned with a pencil?

A. I wouldn't estimate it because it will be a function of how hot this wall is, how hot the heater is, the effects on these heaters due to the series of tests that we have conducted on them.

Q. Will you measure it for me please? [83]

A. Is this the point you are curious about?

Q. Yes.

A. In this particular heated condition today, it measures——

Q. Just tell me what the measurement is.

A. I just measured a three-sixteenths gap, at this heated condition.

Q. Now will you measure the other side and tell me what the gap is on that side?

A. It is also approximately three-sixteenths in a heated condition.

Q. Now, Mr. Blazier, will you look at the second No. 67 heater, the one that has the glass panel extending all the way, and tell me whether or not you find that the top is flush with the wall.

A. It would be considered flush by anyone who installed it, yes.

Defendant's Exhibit "Q"—(Continued)
(Deposition of Warren Blazier, Jr.)

Q. What would you say with respect to the bottom?

A. It is flush according to building practices.

Q. Now will you make the same measurements on the sides of this panel, the second 67 heater, that you made on the first one?

A. I find it is $7/16$ ths on one side and $5/16$ ths on the other in this heated condition.

Q. Will you make the same measurements with respect—well, first, tell me about the top of the 68 heater; is it flush? [84]

A. Reasonably so, yes.

Q. And the bottom?

A. Yes, it is flush.

Q. Will you make the same measurements on the sides of the panel?

A. Three-eighths, and $5/16$ ths on the other.

Q. Let's look at the No. 69 front wall panel and tell me what you find with respect to the condition of the top. A. It is flush.

Q. And the bottom?

A. It is also flush.

Q. And the side measurements again, if you will, please.

A. I would say they are flush, according to standard practice.

Q. Will you measure them?

A. One-thirty-second of an inch on one side and an eighth of an inch on the other side.

Q. Now, let's look at the back of the panel of

Defendant's Exhibit "Q"—(Continued)

(Deposition of Warren Blazier, Jr.)

the No. 69 heater, if we may. Do you find that it is flush with the wall at the top?

A. No, it is not intended to be flush at this point. This is an economizer intake.

Q. Do the instructions say anything with respect to whether or not it should be flush?

A. Well, the specifications tell you how far down, what the maximum distance the wall can extend into the unit. [85]

Q. Now I wonder if you would be so good as to measure the distance between the glass plate, which constitutes the wall at this point, and the front panel?

A. Nine-sixteenths of an inch.

Q. Would you observe the bottom of the panel on the rear of the 69 furnace and tell me whether or not that is flush?

A. The bottom can't be flush against anything because it is an air intake, which is true of any of these units.

Q. The bottom of the side is flush, is it not?

A. That's correct.

Q. What would you say with respect to the side of this panel about half way up; will you make those measurements so we may have them for the record?

A. The right side is flush; the left side is sprung a quarter of an inch.

Q. Mr. Blazier, I am going to ask you to make some observations with respect to the second No.

Defendant's Exhibit "Q"—(Continued)

(Deposition of Warren Blazier, Jr.)

67 Heater, the one with the glass back running the whole way, and I am going to ask Mr. Hollingsworth to take the wand with the titanium tetrachloride and apply it to the lower right hand corner of the heater intake.

Mr. Dawson: The question is objected to as not indicating which right hand corner, whether it is at the far end of the intake or the very back of the casing. [86]

Q. (By Mr. Christie): Now, I ask you to observe where Mr. Hollingsworth is placing the wand, and tell me where that is.

A. All right, he has placed the wand out of the normal, natural air flow.

Q. I asked you where he placed it.

A. I am telling you where he placed it. It is out of the natural flow of this unit, in the back right hand corner, behind the main air intake for the lower box.

Q. Now it's in the space within the heater, however, is it not? A. It is within the heater, yes.

Q. Now, let's close the door, and I will ask you if you will step behind and see if you can observe any smoke flow through the glass panel?

A. May I have a light?

Q. Now, will you observe the smoke pattern, Mr. Blazier, and tell me what you see?

A. I see the wand placed in the casing out of all impedances which, normally, air flow in this

Defendant's Exhibit "Q"—(Continued)

(Deposition of Warren Blazier, Jr.)

unit would be subjected to, and with the wand placed in this position at the back corner at the back of the heater casing I see a small—I did see a small amount of flow.

Mr. Christie: Will you get some more stuff on the wick, Jack? [87]

A. (Continuing): With the wand reactivated, and placed in the back corner of the heater casing away from all of the normal impedances which normal air flow would encounter, I have observed that some smoke does flow up the back wall. It starts at the bottom in the stud space but immediately it is drawn over into the central main stream, which we have observed in previous tests.

Q. Does it flow up in the economizer?

A. While it was operating I did notice that some of the flow went in to the economizer and some spilled around the economizer plate.

Q. Now, Mr. Blazier, I am going to ask Mr. Hollingsworth to repeat that test with Heater No. 68. I would also like to ask what assurance we have of what we have observed on Units 1 and 2, whether that has been observed with the correct input conditions?

A. It is correct for those heaters.

Q. Now, would you step over here, Mr. Blazier, and tell me what you see, with the wand placed in the lower right hand corner.

A. With the wand placed in the lower right hand corner at the back of the heater casing—

Defendant's Exhibit "Q"—(Continued)
(Deposition of Warren Blazier, Jr.)

Mr. Hollingsworth: Would you look at the wand again?

Q. (By Mr. Christie): Will you explain the position of the [88] wand?

A. I see what it's doing; it is all right. I wanted to be certain that he was not touching the electric wiring, which might give him a bad shock.

Q. Tell me what you observed.

A. I observed that the wand was placed just inside of the heater chamber at the base of the heater. I noticed that flow from the wand started to flow up the stud space but was drawn into the lower box.

Q. Where is the smoke coming out?

A. And I see the smoke coming out of the lower box main outlet grille, where it should, on the front. I see a small amount coming out of the lower box outlet back of the grille.

Q. That's the No. 68 heater. Now, Mr. Hollingsworth, would you place the wand in the same position on Heater No. 69 as you had on No. 68.

Mr. Dawson: May I inquire whether No. 69 is heated?

Mr. Christie: Let the record show that the gas has been turned on in Heater No. 69, and the heat has been on in the two Nos. 67 and the 68 during the course of the tests.

Let the record show a recess of approximately five minutes while No. 69 was being heated. [89]

Now, Mr. Hollingsworth, will you apply the wand

Defendant's Exhibit "Q"—(Continued)

(Deposition of Warren Blazier, Jr.)

to the same position in the heater 69 that you had in 68.

Q. (By Mr. Christie): Will you tell me where the wand is, Mr. Blazier?

A. He has placed the wand at the center of the heater on the right side, and I see smoke from the wand being drawn over and entering the lower box.

Q. Will you come and look at the grilles, Mr. Blazier, and tell me where you see the smoke issuing.

A. I see smoke leaving the main outlet of the lower box. I see recirculation occurring.

Q. Did you see any smoke coming out of the upper grille of the economizer?

A. I repeat, I see recirculation occurring and smoke coming out of the economizer as a result.

Q. Answer the question directly—do you see smoke coming out of the upper grille of the economizer on Heater 69?

A. I see smoke coming out of the economizer grille, also recirculation of the outlet air from the main outlet of the lower box into the economizer inlet.

Q. Now, I am going to ask Mr. Hollingsworth, if you will, to place tape on the sides of the several front grilles of the heaters to close the gap which the witness has measured in each case. Now, Mr. Blazier, if you will observe that the [90] gap, which you measured on the fronts of heaters, the two 67 heaters and the 68 heater and the 69 heater, that

Defendant's Exhibit "Q"—(Continued)
(Deposition of Warren Blazier, Jr.)

the gaps on the side have been covered with Scotch Tape, and I am going to ask Mr. Hollingsworth to put the wand back in this first 67 heater, the one with the partial glass back, in the same position he had it before, and I want you to tell me what the position of the wand is.

A. I see the wand is placed at the back of the heater casing, out of the main flow path or out of the air flow path which would be the normal path for operation of this unit.

Q. It is within the heater casing on the lower right hand side, is it not?

A. It is outside of the main air flow, within the heater casing.

Q. On the lower right hand side?

A. Yes.

Q. Now, will you observe the smoke pattern, and tell me what you see?

A. With the wand placed where you have it, outside of the normal area, I see smoke, some smoke in the stud space area; I see that this smoke is taking a variety of paths. One of these paths is in to the economizer; another path spills over the economizer plate, thence travels up the outside of the economizer, and the third path, which is quite significant also, passes through the vent holes at [91] the base of the economizer mounting brackets through the stud spaces. And I see that smoke being discharged through the attic vent spaces.

Q. Do you see more smoke now that the sides

Defendant's Exhibit "Q"—(Continued)

(Deposition of Warren Blazier, Jr.)

of the heaters are covered than you did previously?

A. I don't know. I don't know how big a charge of smoke you have.

Q. Will you look at the front of the heater, Mr. Blazier, you can see it from over here, and tell me what you see now?

A. I see smoke coming out of the main outlet grille of the lower box and I see smoke coming out of the economizer.

Q. Did you see any smoke coming out of the inlet grille of the economizer?

A. Not coming out of the inlet grille, no.

Q. Did you see more smoke coming out of the upper grille of the economizer than coming out of the main grille? A. At this point, I do.

Q. Quite a lot more?

A. I would expect it with the wand placed where you put it. You are forcing a high-density smoke through that area by the place you placed the wand.

Q. Look at it from here again—wouldn't you say that the smoke coming out of the upper grille of the economizer was much more than anything that was coming out below?

A. I would say that there was more coming out at the top of [92] the unit itself than is coming out of the economizer grille.

Q. You didn't answer my question.

A. At this point, with the wand where you have it placed, I see more smoke coming out of the econ-

Defendant's Exhibit "Q"—(Continued)
(Deposition of Warren Blazier, Jr.)

omizer grille and attic vents than I do out of the main outlet of the lower box.

Q. And you still haven't answered my question. I asked you to compare the amount of smoke coming out of the lower part of the furnace with the smoke coming out of the economizer grille.

A. I see more smoke coming out of the economizer grille, with the wand placed where you have it, than I see coming out of the main outlet of the lower box.

Q. Or any other outlet, below the upper economizer, isn't that true?

A. Well, yes, it would be the only outlet I would expect.

Q. Now, may we repeat this same operation on the second No. 67 furnace: that's the one with the glass extending the entire length. Now, Mr. Blazier, has Mr. Hollingsworth placed the wand in the second No. 67 heater in the same relative position that he had in the first 67 heater?

A. They appear similar.

Q. Inside the case in the lower right hand corner, correct? A. Yes.

Q. Now, let's look at the heater through the glass panel on [93] the back, and tell me what you see.

A. Well, I see the smoke being forced into the unit by placing the wand at the back of the casing at the lower right hand side——

Q. Where is the smoke going?

Defendant's Exhibit "Q"—(Continued)

(Deposition of Warren Blazier, Jr.)

A. And so it is out of the general character of the air stream. I see it starting to move up the stud spaces; about midway up the back of the lower box I no longer see any smoke in the stud space.

Q. Where is it going when it reaches the top of the lower box?

A. There is some smoke reaching the top of the lower box and some of it is going in the economizer and some of it is going through the vent holes in the base plate of the economizer and through the stud spaces. It can be seen being discharged through the attic vent.

Q. Now, will you look at the front of the installation around here and tell me what you see.

A. I see a condition which is due to the fact that you have placed the wand where you have and forcing the smoke, and I see smoke coming out of a grille that is normally provided to cool the casing of the unit and it is being drawn into the intake grille directly above, and some of it is going up the wall which is normally to be expected. I see some smoke leaving the economizer grille, but due to the presence of smoke in the region of this small grille on the side [94] panel, it is possible that leakage can occur into the economizer from this inlet on the front.

Q. Did you see any smoke coming out of the top grille of the economizer?

A. You mean the top half or the lower half? The grille is divided.

Defendant's Exhibit "Q"—(Continued)
(Deposition of Warren Blazier, Jr.)

Q. Coming out of the lower portion here; do you see any smoke coming out there?

A. Yes, I see smoke coming out and I also see recirculation; I see smoke going into the economizer inlet.

Q. Now, Mr. Blazier, we are going to repeat these same series of tests with Heater No. 68, with the wand placed inside the main casing in the lower right hand corner, and I will ask you to observe the position of the wand and tell me where it is.

A. All right. You have inserted the wand up in the stud spaces between the lower box and the wall on the right hand side.

Q. It is within the heater casing itself?

A. No, I wouldn't say it was.

Q. Is it adjacent to the primary heat exchanger of the furnace? A. It is adjacent, yes.

Q. And it is within the wall? A. Yes.

Q. Now, if you will observe the smoke at the rear and tell me if you see any smoke through the rear grille?

A. Yes, I see smoke coming through these attic vents and I would expect it with the wand placed where it is.

Q. Do you see any smoke going in to the economizer?

A. I can't say, it is difficult to observe. I see smoke swirling around on the outside of the economizer but I cannot see any going into the econ-

Defendant's Exhibit "Q"—(Continued)

(Deposition of Warren Blazier, Jr.)

omizer. I do see that it is around the outside of the economizer, however.

Q. Now, let's look at the front of No. 68, and tell me what you see with respect to the upper vent of the economizer on No. 68.

A. I see some smoke coming out of the economizer, which I would expect, and I would like to explain that, if I may.

Q. Go ahead.

A. This is demonstrating the reason for this grille; it is designed to cool the heater casing, these small vents at the top of the heater outside casing. The smoke is coming up here, which is normal; there is some recirculation; there also can be anticipated some smoke from the economizer since you are forcing the flow, and I see smoke leaving the economizer.

Q. Through the upper vent?

A. Yes, and also through this side vent.

Q. Let's repeat the test with No. 69. Do you see the position [96] of the wand in No. 69?

A. Yes, I see that it is placed up between the stud spaces of the lower section of the heater.

Q. Substantially as it was in No. 68 in the previous test? A. Yes.

Q. Let us observe. Do you see any smoke to the rear of the heater?

A. Yes, I see smoke that is moving through the vent spaces because of where you have the wand placed.

Defendant's Exhibit "Q"—(Continued)
(Deposition of Warren Blazier, Jr.)

Mr. Dawson: By vent places, you mean what?

A. I mean the vent holes provided in the bottom mounting bracket of the economizer to allow air to move through those vent holes along the stud spaces along the economizer to the attic. I see smoke in the region above the economizer inlet moving along the outside wall of the economizer toward the attic.

Q. (By Mr. Christie): Can you see—I realize there is a grille on there, but can you see any smoke going into the economizer itself?

A. Well, since there is a wall in front of me I couldn't see it if it was there.

Q. Now, looking at the front of No. 69, tell me what you see.

A. I see smoke leaving the economizer because it is being forced, the top of the economizer.

Q. Do you see any smoke leaving the outlet grille of the [97] economizer?

A. I wouldn't expect to see any, and I don't.

Q. The outlet grille?

A. I thought you meant the main outlet grille.

Q. I mean the outlet grille of the economizer.

A. Yes, I said I saw smoke leaving the economizer.

Q. Do you see any smoke leaving the main grille of the main heater grille down below?

A. I see none leaving the main grille.

Q. Do you see any smoke leaving the grille down below at all?

Defendant's Exhibit "Q"—(Continued)

(Deposition of Warren Blazier, Jr.)

A. I see some leaving the side vents.

Q. Do you really mean that?

A. I thought when I first looked at this that that was what I observed, but at the moment I see none—Yes, there I did, there a puff came out.

Q. But you have a continuous flow out of the upper outlet grille of the economizer?

A. Yes, because you have a forced continuous flow at the bottom.

Q. That's true, isn't it?

A. It is true under the conditions you set up, yes.

Q. But only an occasional puff out of the side grille of the front casing?

A. That is what I observe now.

Q. Now, a couple more questions, Mr. Blazier. Will you look [98] at the rear flange—what is the name of this?

A. This is called the economizer support bracket.

Q. In normal installation in a plastered wall, wouldn't the plaster seal off the gap between the gas plate and the economizer base?

A. That could be expected, yes.

Q. And that would be true with respect to both the No. 67 furnaces, if they were installed in a plaster wall without glass plates?

A. If you were to use wet plaster construction in place of this inspection window you would have the same interior resistances, reduction of flow area, as can be anticipated for the rest of the lower box

Defendant's Exhibit "Q"—(Continued)

(Deposition of Warren Blazier, Jr.)

section. These vent holes at the stud spaces at the base of this economizer support bracket are provided for—correction, provide a path for any air that wishes to flow up through the stud spaces to pass through, and in the case of the full wet plaster back wall you could expect the operation of those vent holes to play a more important part.

Q. Have you finished your answer, Mr. Blazier?

A. Yes.

Q. Mr. Blazier, who decided to put this installation of the floor furnaces, about which you have been testifying, in a plaster wall.

A. It was decided in a steering committee meeting with the [99] Coleman people to place the project that way.

Q. I notice over here, in this same North Laboratory, a heater which is, apparently, a Holly heater that has been placed in a dry wall construction?

A. That is correct.

Q. Isn't it true that dry-wall construction is pretty common construction, or do you know?

A. In this area it is, yes.

Q. Isn't it true that the inside of a dry wall is considerably smoother than the inside of a plaster wall, particularly on metal lath?

A. I suppose that would vary with the installation, but you might expect it to be smoother.

Q. I ask you to compare, if you will, the interior plaster, which you can see on this plastered

Defendant's Exhibit "Q"—(Continued)

(Deposition of Warren Blazier, Jr.)

wall here through the glass panel, with the character of the dry wall in this other installation?

A. The pertinent comparison is between the two glass backs.

Q. You can see the interior of the plaster wall here, can you not, and you can see the interior of the dry wall in the second installation, which is a Holly furnace. Can you tell me whether the dry wall construction is smoother than the plaster wall?

A. The dry wall construction is smoother, yes.

Q. Can you tell me whether or not it is farther away in the [100] installation from the economizer and from the furnace structure in the dry wall or in the plastered one?

A. I can't answer that because I am not certain of the thickness of the plaster in all cases and it would depend upon the thickness of the dry wall.

Q. I ask you to look down in the glass panel on the first No. 67 heater against the lower first box and tell me if the plaster doesn't abut the box?

A. Certain sections of it will abut which is as I would expect.

Q. That wouldn't be true if that were a dry wall, would it?

A. Well, are we speaking specifically, as you see here, or wall board with holes and plaster on the outside?

Q. Dry wall as we see it here.

A. Well, yes, this wet wall construction does

Defendant's Exhibit "Q"—(Continued)
(Deposition of Warren Blazier, Jr.)

close off more space at the back of the lower box than the glass wall.

Q. Are you in a position to testify on a basis of your experience whether or not an excessive quantity of plaster has been forced through the mesh in the wet wall?

A. I can only tell you this. We let a contract with a reputable firm in Wichita to plaster this wall.

Q. Who was the firm?

A. The firm name is Cramer Company, and they were not informed as to the purpose of this test—merely were told that we had a job we wanted done, and showed them the test wall [101] that they were to plaster. We relied upon their experience and their habit to do the job as closely resembling standard construction as possible.

Mr. Christie: I would like to have marked as Plaintiff's Exhibit 5 the plaster wall with the four heaters in it, about which the witness has testified. I would like to have marked as Plaintiff's Exhibit 6 the dry wall with a Holly Furnace in it, and ask the reporter to mark both walls.

(The two walls referred to were so marked by the reporter.)

Mr. Christie: Now I offer in evidence Plaintiff's Exhibits 1, 2, 3 and 4, and my offer with respect to the two physicals which were in evidence at the beginning.

Mr. Dawson: I didn't put them into evidence.

Defendant's Exhibit "Q"—(Continued)

(Deposition of Warren Blazier, Jr.)

Mr. Christie: I am offering 1 to 4 now; I put the others, 5 and 6, in evidence at the time they came up, so everything is now in evidence.

Mr. Dawson: You have offered Exhibits 1 to 4?

Mr. Christie: I have offered 5 and 6 also.

Mr. Dawson: No objection.

Q. (By Mr. Christie): One more question here, it might be a minor one but I better ask you. Mr. Blazier, with respect [102] to the second No. 67 furnace, the one with the glass panel, you notice a small flange here between the economizer and the lower box has been bent backward a substantial distance, and that it is bent considerably more than that in the other No. 67 furnace, is that correct? A. I don't know.

Q. I am asking you, as a matter of physical observation, whether or not that is not true. Can you not see that that flange on the second furnace is bent back?

A. Yes, I can see that it is bent back. I would say that, yes.

Q. Do you know the purpose of bending it back, if there was one?

A. No, I can't offer any explanation.

Q. Now, referring to Plaintiff's Exhibit 1—or Defendant's Exhibit A, I am sorry, to page 13, a picture on the right. Can you see smoke coming out of the upper economizer grille? A. Yes.

Q. And you can see smoke coming out of the main grille?

Defendant's Exhibit "Q"—(Continued)
(Deposition of Warren Blazier, Jr.)

A. No, not in the picture on the right; I see no smoke coming out of the main grille.

Q. Will you mark, if you will, with the lettering "T", the position of the smoke coming out of the economizer grille?

A. Now, you asked for the position of the pattern of the [103] economizer outlet on the right?

Q. I am sorry. I meant the left hand picture. Smoke is coming out of the economizer outlet of the left hand picture?

A. It is a little hard, but there is some flow. I have circled the flow out of the economizer outlet and have shown its total pattern which is also along this wall between the top of the heater and the economizer.

Q. Now will you mark the smoke coming out of the main grille?

A. The circulation is a little hard to show.

Q. That's my point. I don't think the picture shows.

A. You remember how it circulates except it is going to be much harder to see in these photographs.

Q. Now, Mr. Blazier, you can see the smoke coming out of the economizer grille, can you?

A. Yes.

Q. And you can see the smoke coming out of the main grille?

A. Yes, but I can't see any smoke recirculating, and I don't think you can either. I would like to

Defendant's Exhibit "Q"—(Continued)

(Deposition of Warren Blazier, Jr.)

point out that in the photograph of this whole area between the front edge of the smoke pattern of the main outlet grille on the left side clear through the main edge of the main outlet area discharged on the right side, that whole area is filled with smoke of varying density. What the photograph has picked up is the density gradient, showing a high density [104] in the main flow, and I can see that there is a haze existing in the area immediately above the economizer inlet. Now, when we observe these directly, if you get your lighting right, you can see air entering the economizer, but for the purpose of describing the character of the flow for this main unit we cannot pick that up photographically and show the character of the flow that this picture is supposed to demonstrate.

Q. In other words, the picture doesn't show the recirculation as you testified about?

A. I don't know whether it does or not. I point out this haze existing and say if that haze exists I say recirculation can occur. I don't know whether it is occurring or not.

Q. I believe you testified that the smoke is titanium dioxide?

A. That's the white particles of smoke.

Q. Do you know how the density of that smoke compares with the density of air at the same temperature?

A. The density of the smoke at the same temperature would be greater than the density of air

Defendant's Exhibit "Q"—(Continued)

(Deposition of Warren Blazier, Jr.)

—the actual quantity I can't give you specifically. I know, for the purpose of evaluating the flow pattern up the back of this model 67 wall heater with the glass-back panel, we used a heated air carbon smoke which was as light as anything could be for our test. [105]

Q. Now, was the carbon smoke still heavier than air, at the same temperature?

A. I didn't observe it to be any heavier than air since I observed no falling of particles out of the main stream. The smoke moved from the lower part of the unit up to the top and I saw no settling-out of the carbon particles in the stream. So I don't know what the relative density is.

Q. You don't know whether carbon smoke is heavier than air at the same temperature?

A. Yes.

Q. Is that a proper summation of your testimony?

A. Well, certainly, a mixture of air and carbon is going to be heavier than a mixture of pure air.

Q. And the smoke was a mixture of air and carbon, wasn't it? A. Primarily, yes.

Q. Do you want to amend your answer, then, and state that the carbon smoke was heavier than air?

A. No, because I am not certain of the temperature characteristic—I just don't know.

Q. I am saying at the same temperature.

A. I still don't know. I told you I observed no

Defendant's Exhibit "Q"—(Continued)

(Deposition of Warren Blazier, Jr.)

settling-out of the particles and I would have expected a settling-out if the density of the smoke would have been too great for the test. [106]

Q. That isn't what I asked you.

A. Well, then, the answer to your question is that I don't know.

Q. You mentioned a steering committee of the foundation. Is it in the Coleman Company or in this foundation, the steering committee that determined how these tests are to be conducted?

A. My reference to a steering committee was our attendance at the meeting with representatives of the Coleman Company where they outlined this project for us to undertake.

Q. And who was present at the meeting?

A. I don't know—I can remember some of the people, but I can't remember all of them. Jack Kice was present.

Q. What is his position in the Coleman Company, if you know?

A. Administrative Assistant to the President.

Q. Do you remember anybody else?

A. Ray Qualley.

Q. What's his position in the Coleman Company?

A. Director of Research for Coleman. Mr. Mattingly was there; he is Assistant to Ray Qualley.

Q. Who was there from the foundation?

A. Myself, and George L. Petoff, who is a research engineer with the Wichita University Found-

Defendant's Exhibit "Q"—(Continued)

(Deposition of Warren Blazier, Jr.)

ation for Industrial Research. We were the only two representatives at that meeting from this organization. [107]

Q. Referring now to Plaintiff's Exhibit 4, for identification, isn't it true, Mr. Blazier, that smoke is free to rise in the space behind the lower box, up as far as the lower stop of the economizer, entirely across the exposed cross-section?

A. In the case of this glass wall installation, area is provided for smoke to rise if it wishes.

Q. And have you not, this afternoon, witnessed smoke rising substantially across the entire cross-section of that open space?

A. When smoke was forced into the unit I have observed that, yes.

Q. Will you explain what you mean by "forced in the unit"?

A. All right. The wick, or smoke generator, was placed at a point which was outside the area through which the normal air flow from the outside of the unit would pass. The smoke was actually injected into the space, into the stud space between the stud and the side of the lower box. This smoke did not get into this stud space by coming in to the heater through normal conditions and being subject to the up drafts and other pressures created by the burner and the lower box.

Q. Now, isn't it true that in the normal operation of this heater, smoke is not forced into the device at any point?

Defendant's Exhibit "Q"—(Continued)

(Deposition of Warren Blazier, Jr.)

A. Under normal operating conditions, if smoke is placed at [108] the front of the heater, in front of the lower inlet, it will enter under normal conditions.

Q. Now, isn't it true that the presence of the smoke within the heater, irrespective of its position, shows the air movement within the heater from that point?

A. Not necessarily; it depends upon the conditions of the smoke generator. I have no way of saying what is happening when you placed the smoke generator where you did because I don't know what the tendency of the smoke is.

Q. You saw it happen, didn't you?

A. I don't know for what reason movement occurs when you have placed a smoke generator where you have, because I do not know the character of this smoke when it is placed in this dead air region.

Q. Wouldn't you think that it is a reasonable assumption that the reason you had smoke movement, which you saw, was because there was air movement from that point?

A. I don't discount a chemical reaction.

Q. With what?

A. The titanium tetrachloride with water in the air. I don't know. That's why we generate our smoke outside the heater; we don't want that chemical reaction to take place inside the heater.

Q. What is this chemical reaction?

Defendant's Exhibit "Q"—(Continued)
(Deposition of Warren Blazier, Jr.)

A. Titanium tetrachloride, when exposed to air, combines with [109] water vapor to form hydrochloric acid and titanium dioxide.

Q. Does it do this with anything like explosive violence?

A. You can pour it in water and get quite a heavy reaction.

Q. Did you see it reacting with any explosive violence in the air, either inside the furnace or outside the furnace? A. No.

Q. Did you observe any violence?

A. The wand spits particles; it is not comfortable to be around. I don't know what you mean; what you are getting at.

Mr. Christie: That is all.

Redirect Examination

Q. (By Mr. Dawson): Mr. Blazier, may I call your attention to Plaintiff's Exhibit 6, and ask you to see whether that model forms a flush fit all the way around with the wall against which it is placed.

Mr. Christie: That question is objected to on the ground of irrelevancy. This heater is not in issue.

Mr. Dawson: It has been placed in evidence by the plaintiff.

Mr. Christie: It is further objected to on the ground that the device has been misassembled. [110]

Mr. Dawson: In answering to that, we are agree-

Defendant's Exhibit "Q"—(Continued)

(Deposition of Warren Blazier, Jr.)

able to your assembling it the way you want it. You have your expert here. Mr. Hollingsworth, in fact, a few minutes ago, placed this in position. We are quite willing to have Mr. Hollingsworth place this against a wall and see if he can make it flush.

Mr. Hollingsworth: The panel cannot be put in its normal flush position because the heater is not complete. The draw screws that are used to draw the heater back to the wall are missing from the heater.

Mr. Dawson: Would you say that your panels are always flush against the wall?

Mr. Christie: Do you want to swear Mr. Hollingsworth?

Mr. Dawson: That's all.

Mr. Christie: That's all.

/s/ WARREN BLAZIER, JR.

State of Kansas,
County of Sedgwick—ss.

Subscribed and sworn to before me, a Notary Public in and for said County and State, this 1st. day of February, 1954.

[Seal] MARY MARGARET WINGER,
Notary Public.

[Endorsed]: Filed February 5, 1954.

DEFENDANT'S EXHIBIT "S"

In the District Court of the United States, Southern
District of California, Central Division

[Title of Cause No. 15886-WM.]

PRETRIAL STATEMENT

Pursuant to the Pretrial Order of this Court of November 20, 1953, the parties to the above entitled suit, by their respective attorneys, for the purpose of simplifying the issues in the trial of this cause, agree as follows:

1. The action was commenced September 23, 1953 by the Plaintiff, Holly Manufacturing Company, a corporation organized and existing under and by virtue of the laws of the State of California, and having a principal place of business in the City of Pasadena, County of Los Angeles, State of California, against The Coleman Company, Inc., a corporation organized and existing under and by virtue of the laws of the State of Kansas, and having its principal place of business in Wichita, Kansas, and a regular and established place of business in the City of Los Angeles, County of Los Angeles, State of California, in the Southern District of California, Central Division.

2. That Plaintiff is the owner of United States Letters Patent No. 2,602,441.

3. That said Complaint charges that the Defendant has infringed said Letters Patent by the manufacture and sale of wall heaters known as Models

No. 64, 67, 68 and 69, all employing a 4-foot economizer.

Defendant denies infringement of the patent in suit by said heaters.

4. That pursuant to Stipulation, on October 15, 1954, Plaintiff served upon Defendant a First Supplemental Complaint and Defendant filed an answer thereto; that said Supplemental Complaint realleges the infringement by the above set forth wall heaters, and further alleges that since November 2, 1953, Defendant has, by manufacturing and selling wall heaters, Models Nos. 64, 67, 68 and 69, employing a new type of 3-foot economizer, infringed said Letters Patent.

The infringement by all models is specifically denied by Defendant.

5. That all of the wall heaters charged to infringe are designed to be placed between two adjacent studs in the wall of a dwelling and consist of a heater and an economizer.

6. That since November 2, 1953, Defendant has not manufactured and sold heaters with the 4-foot economizer, but all heaters have been equipped since that date with the 3-foot economizer.

7. That for the purposes of this trial it is agreed that Plaintiff will rely for his proof of infringement on the Model No. 67 with the 4-foot economizer and the Model No. 67 with the 3-foot economizer, and that if the Model No. 67 with the 4-foot economizer infringes the Letters Patent, then all models having the 4-foot economizer infringe the Letters Patent, and if the Model No. 67 with the 3-foot econo-

mizer infringes the Letters Patent all models with the 3-foot economizer infringe the Letters Patent.

8. That the Defendant's wall heater, Model No. 67, has the following parts:

(a) An outer shell adapted to be mounted in a wall of a room to extend upwardly therein from a level near the floor of the room to a level part way to the ceiling.

(b) A combustion chamber mounted in the shell and spaced from the walls thereof.

(c) A gas burner mounted to burn fuel in said combustion chamber.

(d) An opening at the bottom of the shell for introducing air thereinto adjacent the floor of the room.

(e) An opening from the shell at the top thereof for discharging air into the room from the shell near its top.

(f) An economizer mounted upon the top of the shell comprising an outer casing extending from a level just above the shell to a level near the ceiling of the room.

(g) A hot gas flue disposed in the casing and spaced from the walls thereof.

(h) An air opening at the top of the casing for discharging air from the casing into the room below the ceiling of the room.

(i) A draft hood provided with a relief opening into the room and connecting the top of the combustion chamber with the bottom of the hot gas flue.

(j) A gas flue connected to the top of the hot gas

flue to conduct the flue gases to the exterior of the building.

(k) Said wall heaters also having a baffle disposed between the combustion chamber and the rear of the shell.

(l) That the baffle provides a conduit between the rear wall of the shell and the baffle and has an opening communicating at the top with the interior of the shell.

(m) The hot gas flue is composed of flat front and rear members.

9. The claims charged to be infringed are claims 1 to 4, inclusive.

10. It is further stipulated that uncertified printed copies or uncertified photostatic copies of United States Letters Patent may be introduced and received in evidence, subject to the legal objections as to their relevancy and materiality, with the same force and effect as the originals, and that the printed dates of application and issuance of such Letters Patent shall be taken as *prima facie* evidence of the actual dates respectively thereof, subject to correction at any time for errors; and

That uncertified photostatic or typewritten copies of the file wrapper and contents, or the file history and contents, of the patent in suit may be introduced and received in evidence without further proof of authenticity, subject to the legal objections as to their relevancy and materiality, with the same force and effect as the originals and subject to correction at any time for errors.

11. It is stipulated that the deposition of War-

ren Blazier, Jr., and exhibits attached thereto, taken by the Defendant at Wichita, Kansas, may be introduced in evidence, subject to any legal objections, with the exception that the deponent is present and could retestify.

12. It is stipulated that the deposition of Henry Landsberg, taken at Pasadena, California, and exhibits attached thereto, taken by Plaintiff at Pasadena, California, may be introduced in evidence, subject to any legal objections, with the exception that the deponent is present and could retestify.

13. It is stipulated that the depositions of Sheldon Coleman, Harry Giwosky, Jack Kice and Charles Taylor Gale, and the exhibits attached thereto, taken by Defendant at Wichita, Kansas, may be introduced in evidence, subject to any legal objections, with the exception that the deponents are present and could retestify.

The contentions of the two parties which cannot be stipulated to are as follows:

1. Plaintiff contends that all models of the Coleman wall heater set forth in the above stipulation infringe claims 1 to 4 inclusive of the Letters Patent in suit.

2. Defendant contends that none of said models infringe said claims.

3. Defendant further contends that claims 1 to 4, inclusive of the Letters Patent in suit are invalid and that upon the trial of this action Defendant will rely upon the following United States Letters Patent and British Patent as an anticipation

of the invention claimed in the patent in suit or as showing a lack of invention of the patent in suit, copies of which patents accompany this statement and are marked as follows:

Exhibit C—United States Patent No. 1,361,389, issued to McLeod December 7, 1920;

Exhibit D—United States Patent No. 1,698,775, issued to Traut January 15, 1929;

Exhibit E—United States Patent No. 2,453,954, issued to Wright November 16, 1948;

Exhibit F—United States Patent No. 2,484,457, issued to Marble October 11, 1949;

Exhibit G—United States Patent No. 2,487,775, issued to Cartter November 8, 1949;

Exhibit H—United States Patent No. 139,111, issued to Briggs May 20, 1873;

Exhibit I—United States Patent No. 268,860, issued to Browell December 12, 1882;

Exhibit J—United States Patent No. 2,209,324, issued to Davison July 30, 1940;

Exhibit K—United States Patent No. 2,491,664, issued to James December 20, 1949;

Exhibit L—United States Patent No. 303,174, issued to Mason August 5, 1884;

Exhibit M—United States Patent No. 2,093,492, issued to Snyder September 21, 1937;

Exhibit N—United States Patent No. 311,313, issued to Hamilton January 27, 1885;

Exhibit O—United States Patent No. 2,102,727, issued to Maher December 21, 1937; and

Exhibit P—British Patent No. 140,989, issued to McLeod April 8, 1920.

4. Plaintiff further contends that the wall heaters manufactured and sold by Plaintiff and designated as the "NarroWall" embody the inventions described and claimed in the patent in suit.

5. Plaintiff contends and Defendant denies that Defendant's hot gas flue in the economizer has a substantially smaller cross section than the combustion chamber.

6. Plaintiff contends and Defendants denies that the casing of Defendant's heaters have an inlet opening adjacent the bottom thereof and adapted to receive air flowing upward outside of the shell and inside the wall of the dwelling.

Signed at Los Angeles, California, this 22nd day of October, 1954.

/s/ By JAMES B. CHRISTIE,
Attorney for Plaintiff
LYON & LYON,

/s/ By FREDERICK W. LYON,
Attorneys for Defendant

[Endorsed]: Filed October 22, 1954.

DEFENDANT'S EXHIBIT "V"

In the United States District Court for the Southern District of California, Central Division

[Title of Cause No. 15886-WM.]

DEPOSITION OF HENRY LANDSBERG

The Deposition of Henry Landsberg, called as a witness by the plaintiff on Monday, July 26th, 1954, beginning at the hour of 10:00 o'clock a.m., at 875 South Arroyo Parkway, Pasadena, California, before E. S. Brink, Notary Public in and for the County of Los Angeles, State of California.

Appearances: For the Plaintiff: James B. Christie, by Richard B. Hoegh. For the Defendant: Lyon & Lyon, by Frederick W. Lyon. [2*]

HENRY LANDSBERG

called as a witness by the plaintiff, being first duly sworn by the Notary Public, was examined and testified as follows:

Direct Examination

Q. (By Mr. Hoegh): State your name.

A. Henry Landsberg.

Q. What is your present occupation, Mr. Landsberg?

A. I am manager of the Process Instrumentation Group, Consolidated Engineering Corporation.

Q. How long have you been in that position?

* Page numbers appearing at top of page of original Reporter's Transcript of Record.

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

A. The particular position, about a year. Prior to then I was manager of just the Titrilog section for two years before then.

Q. In general what are your duties now in your present position?

A. There are actually two groups within the group. One pertains to the Titrilog, which is the instrument we will use in this test. That was in carrying on the development of the instrument and handling a rental program with the instrument and also making tests regarding the usefulness of the instrument. And then the other group is in a new mass spectrometer which Consolidated manufactures and that is an application group, in which case we study the instrument and determine the various applications for [3] which the instrument is suitable.

Q. You are in direct charge of both of these groups, is that correct? A. Right.

Q. How long have you actively used or been associated and used the Titrilog?

A. Approximately five years.

Q. When did you first come to Consolidated?

A. August, 1949.

Q. What formal education have you had in engineering and chemistry?

A. I am a graduate in chemical engineering from Rice Institute, Houston, the year of 1935.

Q. 1935. Generally what has been your experi-

Defendant's Exhibit "V"—(Continued)

(Deposition of Henry Landsberg.)

ence from the time you left there until the time you went to Consolidated?

A. I was an engineer for Magnolia Petroleum Company in Dallas, Texas for six years. I was in the Army for four years, Commander of a mobile petroleum testing laboratory. Then for a short period of time after the war I was in the plastics business prior to my joining Consolidated.

Q. What subject did you concentrate on in Rice Institute? A. Chemical engineering.

Q. Have you written any papers or published any papers or read any papers concerning the operation of the [4] Titrilog?

Mr. Lyon: What is the name of this machine?

A. Titrilog.

Mr. Lyon: Thanks.

A. Yes, I gave a paper at the American Chemical Society in September last year at Chicago. That paper is presently published in the current issue of Industrial Chemical Engineer—Industry Engineering Chemistry. There have been previous papers written on the instrument, too.

Mr. Hoegh: Q. By you?

A. Not me, not me.

Q. In connection with other people?

A. Yes. Not by myself. Other people connected with the early development of the instrument.

Mr. Kice: You say the current issue of this magazine?

A. Yes.

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

Mr. Hoegh: Q. Do you know the date of it?

A. The July issue.

Q. Would you briefly describe how the Titrilog works, Mr. Landsberg?

A. The Titrilog was developed originally for the chemical warfare service in the United States Army to determine or trace quantities of sulphur compounds in atmosphere. That is mustard gas, being a sulphur compound. The instrument operates on the general principle of a [5] chemical analyses by oxidation-reduction with bromine. Now, the way we do it in the Titrilog is that gas is drawn through the titration cell which is the heart of the instrument. It is drawn through a sulphuric acid electrolyte that contains potassium bromide salt. Bromine is generated electrolytically. At the start of an operation the air or gas that is introduced into the cell is sulphur free, either by taking it from the atmosphere, or if there is any question of the air containing any sulphur, it is scrubbed through a charcoal soda lime filter. During that time a small amount of bromine is generated. Since there is no sulphur compound going into the cell, there is no reaction. So the bromine that is generated sets up a voltage across two center electrodes. That voltage is opposed by another voltage from a battery which is equal and opposite so that a null is developed, a balance. Upon the introduction of a gas containing sulphur compounds which will react with the bromine, bromine will do so

Defendant's Exhibit "V"—(Continued)

(Deposition of Henry Landsberg.)

and thereby destroying the balance. The titration cell is hooked in a series with an amplifier, a feed back system, so that the setup must remain in balance at all times. So when the balance is destroyed a signal results, it results in a signal being sent to the amplifier which increases the bromine generation to satisfy the reaction as well as this initial setting. The difference between the initial setting, which we call the zero level, and the [6] level during titration is due to the titration of the sulphur with the bromine. I have neglected to say that all of these readings are simply the generating current of the bromine, the bromine being directly proportional to the amount of generating current, and we are recording then the milliamps of generating current. We have had these instruments in the field for the last four or five years on various types of applications such as monitoring the gas, natural gas, coming from the West Texas field that is being treated, and it is essential that the sulphur be removed from this gas before it is introduced into the pipe lines because of the corrosive nature of hydrogen sulphide, so the Titrilog is being used in plants. So many gas companies use the Titrilog since the natural sulphur compounds have been removed from the gas, then natural gas becomes relatively odorless in which case it will be dangerous in that it would not be detected if there was a leak present in a home. So many gas companies introduce a relatively non-corrosive sulphur compound

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

so the mercaptan or hydrogen sulphide, which have a very high odor level, and they monitor the injection of it with the Titrilog in order to make certain that a sufficient amount is introduced, but not too much. And that is a fairly critical level in that too much will cause an excessive number of complaints due to leaks which are really insignificant.

Q. What is the sensitivity of the instrument?

A. The instrument is sensitive enough to record concentrations certainly as low as one part in ten million, and in many cases even more so. That is one of the—because of that extreme sensitivity the instrument is being used quite extensively in many areas in air pollution studies where sulphur dioxide is the more prominent pollutent.

Q. What is the accuracy of the instrument?

A. It is determined by calibration. And in this paper, one of the important—one of the prime reasons for the paper is discussing the accuracy of the instrument in that in many applications the instrument is not calibrated more often than once a month. And by extensive testing over a two month period on four instruments, we have determined that the accuracy of the Titrilog if calibrated once a month is about 16 per cent. If calibrated once a week I think it was around 7 per cent, and if calibrated daily it is around 3 per cent. That is 3 per cent of your reading.

Q. Well, the instrument will show differences in the concentration of the sulphur dioxide?

Defendant's Exhibit "V"—(Continued)

(Deposition of Henry Landsberg.)

A. Practically instantaneously.

Q. Does the time lag between the taking of samples as to what you want to compare it with on two concentrations have any effect on the accuracy when you are comparing?

A. No, that is the way the instrument is generally [8] operated, on cycle period, whereby it will record, for instance, in cases of air pollution it will record the concentration in the atmosphere and periodically the air will be drawn through a charcoal filter in order to get the—reestablish reference levels. That is where extreme accuracy is being attempted, to get the most accuracy out of the instrument and also extremely small concentrations. Generally in the level of two tenths parts per million.

Q. How is the sample drawn into the instrument, Mr. Landsberg?

A. The sample is drawn into—there are two methods of sampling with the Titrilog. I will describe only the method we have used here, in that a pump—in order to make certain that no sulphur compound is given off or taken up by the sample, it is not put through a pump prior to introduction in the titration cell, but it is pulled through the pump. The volume is controlled by critical flow orifice downstream of the cell and that is set at approximately a thousand cc's per minute.

Q. As the sample is being drawn through are

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

there continuous readings made of the SO_2 concentration?

A. Right, as the sample is being continuously drawn through a fritted glass stem in the cell, the gas is dispersed and reaction takes place on a practically instantaneous basis. [9]

Q. Getting to the test we are going to conduct today, what devices are being tested with the Titri-log; what actually will we be running tests on?

A. We are making tests on two Coleman wall furnaces, Type 67, I think.

Q. Do you know the difference between the two types?

A. This one here on the left has a heat exchanger, secondary heat exchanger, is it?

Q. Yes.

A. Of four feet and the one on the right three feet.

Mr. Lyon: Can I ask a question on voir dire?

Mr. Hoegh: Any time, Mr. Lyon.

Mr. Lyon: On the operation of this machine. You have to draw the gas into the machine, don't you?

A. Right, sir.

Mr. Lyon: And now you have talked about the accuracy in it, but does that vary as to the quantity of gas that is going through?

A. The quantity of gas is fixed by the critical flow orifice.

Mr. Hoegh: Get up if you wish. If you want to

Defendant's Exhibit "V"—(Continued)

(Deposition of Henry Landsberg.)

take a look, if you have any questions at all, Mr. Lyon——

A. I think perhaps I can show it on the pad easier.

Mr. Lyon: But you have to have a constant volume? A. That's right.

Mr. Lyon: That's all. [10]

A. We have to have a constant volume and critical flow orifice will do that.

Mr. Lyon: All right.

Mr. Hoegh: Q. What are the tests which we are going to conduct on these devices designed to show, Mr. Landsberg?

A. We are going to introduce a small amount of sulphur into the air that is being drawn in the bottom portion of the furnace. We will test that air for the sulphur concentration in the back of the furnace and then test the air as it comes out of the—what do you call that?

Q. Upper discharge grille.

A. Upper discharge, and attempt to show the amount of dilution which has taken place during its travel.

Mr. Lyon: You have to put a suction on that?

A. No, sir. The suction is practically nil. It is on the order of two or three inches of water.

Mr. Lyon: But you are drawing a thousand cc's——

A. Per minute.

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

Mr. Lyon: Per minute of air out of the machine and any place you make a test, aren't you?

A. Right.

Mr. Lyon: All right.

A. I say there is a suction of two or three inches of [11] water, that is a maximum suction. When the cell is open to the atmosphere or to an atmosphere of gas, I doubt if it is that high a vacuum.

Mr. Lyon: Do you have any way of telling what that vacuum is?

A. It perhaps could be measured by a draft gauge but with so low a vacuum and the full capacity of the air being available, I doubt if you could even see any vacuum.

Mr. Hoegh: Q. Would you describe how the tracer gas is injected, Mr. Landsberg?

A. The tracer gas is being injected into an atmosphere in front of the air intake of the furnace from a bottle of pure SO_2 sulphur dioxide, through a very fine capillary, and being dispersed in this tunnel with a slow moving propeller that has no pitch.

Mr. Lyon: Propeller without a pitch?

A. It is a mixing blade.

Mr. Lyon: Oh, just a mixing blade.

Mr. Hoegh: Q. Would you explain the purpose of this slot in front of the tunnel, please, Mr. Landsberg?

A. The slot was placed there so as to create a forward draft into the furnace, although it is more

Defendant's Exhibit "V"—(Continued)

(Deposition of Henry Landsberg.)

than ample to supply the necessary amount of air to the furnace.

Mr. Lyon: Are these two furnaces at their regular critical operating level now?

Mr. Hoegh: They are as high as we can get them. [12] This one Mr. Landsberg has checked the input on it, and I would like to ask you—

Mr. Lyon: I mean, are they being heated now?

A. Yes.

Mr. Hoegh: Q. How long has this one been on?

A. This one has been on since I have been here, which was about 9:15, it was before then, and we computed the wet meter; on the basis of the wet meter and the B.T.U. constant of the gas, there is approximately 30,000 B.T.U.'s per hour.

Q. Would you describe the location of the sample points which will be used, Mr. Landsberg?

A. There are four sample points in the back labeled one, two, three, and four. Those are the sample points of the air before it has had a chance to be diluted and then we will check point five which is the outgoing air through the vent, the three positions called 5A, B, and C. Then we will check around points 7 and 8 to make certain that some of the gas, affluent gas from this portion of the furnace is not being drawn in through these other—what do you call them?

Q. Inlet grilles on the top of the outer case of the box. By this portion, you referred to the main discharge grille?

A. Main discharge.

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

Q. Would you begin the actual test now, Mr. Landsberg, [13] starting with taking a reading of the atmosphere? I might ask what the plots on there represent.

A. As I mentioned before, we are recording the milliamperes of generating current of which the bromine concentration is a direct function. Right now we are just drawing atmospheric air into the cell and the zero level has been established at 13 units. I don't think we will attempt to convert readings here into concentration since it is a relative type test, so your net titration level here would be indicative of the relative concentrations of the point at which we will test. Right now we have established the zero level. In order to make these tests a little clearer, when we start testing we will speed up the chart so it will move faster. All right.

Mr. Lyon: Is this dial up here the one that you are saying is 13? A. Either one.

Mr. Lyon: I can see it. Thank you.

A. Each small division is two tenths of a unit, two hundredths of a unit.

Mr. Hoegh: Q. The reading you get for atmosphere is what?

A. The reading I have for atmosphere is 13 divisions.

Mr. Lyon: Is that the pipe where the clean air is drawn in?

A. Yes, the tubing. Clean air is being drawn through [14] the tubing here.

Defendant's Exhibit "V"—(Continued)

(Deposition of Henry Landsberg.)

Mr. Lyon: What size is that?

A. Quarter inch.

Mr. Lyon: What volume of air is being pulled through?

A. One thousand cc's per minute is always being drawn through the cell regardless of the size of tubing in that that is a critical flow orifice stream of——

Mr. Lyon: Then any time this machine is operating today we can say it is a thousand cc's being drawn into it? A. Right.

Mr. Lyon: Thank you. That is a fixed volume.

Mr. Hoegh: Q. Perhaps we better explain what a critical flow orifice is.

A. Critical flow orifice is an orifice which if the downstream pressure of the orifice is less than half of the upstream pressure, the flow through the orifice will remain constant regardless of what the downstream pressure will do. High changes. As long as it remains less than half of the upstream pressure. This pump is pulling—can pull a vacuum on the downstream side of the orifice, not in the cell, as high as 18 inches of mercury vacuum. The upstream pressure is always the atmospheric because it is open to atmosphere. Therefore, we have less than a half ration there, so critical flow conditions exist.

Q. Would you begin taking samples of point number 1? A. All right. [15]

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

Mr. Lyon: Are you connecting this, sir, or is somebody else?

Mr. Hoegh: This is Mr. Percy helping.

Mr. Lyon: During this test on this Coleman furnace, is the standard Coleman heater fired?

Mr. Hoegh: Yes.

A. At 30,000 B.T.U.'s per hour.

Mr. Lyon: How did you rate that 30,000?

A. We measured the cubic foot input of the gas into the furnace for a half a cubic foot to determine the number of seconds. That divided into the 3,600 seconds contained in one hour times the reading—times two, since this is only a half a foot, would give you the number of cubic feet to be injected into the furnace. That times the B.T.U. content of the gas, which is eleven hundredths per thousand cubic feet, times a factor of point nine which corrects the gas in volume due to temperature conditions will give you the B.T.U. content per hour.

Mr. Lyon: How was the B.T.U. of this gas determined?

A. I think there was a test made here in the plant as being at approximately eleven hundred. But also——

Mr. Lyon: You don't know?

A. I don't know that, but I know that the gas company rates their gas at somewhere between a thousand and eleven hundred B.T.U.'s generally.

Mr. Lyon: All right. I am ready. [16]

Defendant's Exhibit "V"—(Continued)

(Deposition of Henry Landsberg.)

Mr. Hoegh: Well, we are now taking gas into the Titrilog from point number 1. I would like to ask you to make a reading of that, please, Mr. Landsberg.

A. All right. The reading for point number 1 we can average out as this chart has been moving at a faster speed which indicates, any little wiggles, a slower speed. I would average this at, oh, approximately 73 divisions which, subtracting the zero level from that will yield a net titration level of 60 divisions.

Mr. Hoegh: Q. Will you switch now to point number 2?

A. All right. Let's get a zero level.

Mr. Lyon: Are you injecting SO_2 now?

A. Yes.

Mr. Lyon: Thank you.

A. Note the response of the instrument. Open it up to the other atmosphere and it immediately returns to a zero level.

Mr. Lyon: Mr. Witness, don't I read this zero level nearer 15?

Mr. Hoegh: Mr. Lyon, we are going to need the services of Mr. Percy who came along to hold this tube. The witness just can't read it and hold it, too.

Mr. Lyon: I mean, when you look this square on it is nearer 15.

A. Right now it is nearer 15 because the tube has some gas in it. In other words, there is a small reading. [17] Now, we do not. We establish this

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

zero level. We can use this one and if we use that one then on the others, the difference nullifies practically, in fact. True zero level will exist in the instrument because that is determined by this battery voltage. Are you on 2 now?

Mr. Hoegh: Q. Are you taking a reading from point number 2 now?

A. Point number 2. I better mark this. You notice he has the tube only flush with the back surface.

Q. Would you read the reading per point number 2, please, Mr. Landsberg?

A. Let it average out a little bit longer. All right.

Mr. Lyon: Couldn't we agree on the reading at about 70?

A. It is all right with me. I think it would be a good idea if we did agree, because of the eye, to agree on the readings. 70. So that is a net reading of 57.

Mr. Hoegh: Q. Would you now place the pick-up on point number 3? Is it on point number 3 now, Mr. Landsberg?

A. It is on point number 3.

Q. Would you take the reading on point number 3 now, please?

A. That is number 3. All right. Average that about 73 or 74, wouldn't you?

Mr. Lyon: Yes.

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

A. 73 makes the subtraction easy. That would be [18] 60 divisions net.

Mr. Hoegh: Q. Place the pickup at point number 4, please. Would you read the reading from sample point number 4, please?

Mr. Lyon: Call that 24, don't you?

A. Agree on about 24?

Mr. Lyon: Yes.

A. That is a net of 11.

Mr. Lyon: Would you mind putting it back on number 1 for just a minute or two?

A. All right. Put it back on number——

Mr. Lyon: You better mark this as number 4. Averaging about 70 again, the same as it was before, isn't it? A. 72 or 73.

Mr. Lyon: All right. Go ahead with whatever you want again. A. All right.

Mr. Hoegh: Q. Would you now take a sample at points 5A, B and C?

A. We will take samples of 5A, B, and C and on this grille we label the three different points across.

Mr. Hoegh: The upper grille there.

A. Is it the upper or lower? The upper grille. And we will use a funnel so we will get more of an average reading across there. [19]

Mr. Hoegh: I notice a funnel has been attached to the end of the pickup tube. Could you explain the reason for that?

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

A. To get more of an average reading across the entire—the upper one.

Mr. Hoegh: No, that's right.

A. All right.

Q. What is the point over which or from which the sample is being taken now?

A. 5A. The point is 5A. All right, Earl, take it away for a second to make a break in the chart.

Mr. Lyon: Would you say that is about 50?

A. 50, which would be a net of 37. All right.

Mr. Hoegh: Q. What is the point from which you are taking a sample now?

A. 5B.

Mr. Lyon: Can we agree on about 29 on that one? A. 29. That is 16.

Mr. Hoegh: Q. 16 is the reading for point 5B?

A. Yes.

Mr. Lyon: Well, the machine read 29. I mean, we are not—let's not subtract it now. I want to keep the record clear of what the machine read.

Mr. Hoegh: Q. What sample point are you using now, Mr. Landsberg?

A. 5B. These changes in concentration, these wiggles [20] are very small, down below, it is seven parts per million.

(Discussion held off record.)

Mr. Lyon: Would you be willing to call that what? A. Oh, I don't know.

Mr. Lyon: About the same, 49?

A. 49, yes.

Defendant's Exhibit "V"—(Continued)

(Deposition of Henry Landsberg.)

Mr. Hoegh: Q. That is for point 5C?

A. 5C, 49. That is 36. Now, just to make sure——

Mr. Hoegh: Q. As a check, would you take the funnel off and probe the last one, please, 5C?

A. 5C without a funnel.

Q. Yes.

A. All right. This is 5C without a funnel just to show it is a similar reading.

Q. Would you pull it towards you?

A. Towards you.

Mr. Lyon: About 46. A. 46, yes.

Mr. Lyon: About 46.

Mr. Hoegh: Q. That is 5C without a funnel?

A. All right.

Q. Would you now check points 7 and 8, please, Mr. Landsberg?

A. We are checking 7 and 8, not what is coming out of there but what might be going in.

Mr. Lyon: You better mark where that is coming from. [21] A. Yes.

Mr. Lyon: Is that about 20?

A. About 20, yes. That would be 7.

Mr. Hoegh: Would you now take a sample of point number 8?

Mr. Lyon: What caused that big violent swing when he changed that? A. Which is that?

Mr. Lyon: It went clear through 28.

Mr. Hoegh: He may placed it out in the stream.

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

A. He pulled it away and probably got more of the gas coming out of the upper portion.

Mr. Lyon: Out of the main lower grille?

A. Yes, the concentrating coming out of there is approximately—that is probably the reason for this, too.

Mr. Lyon: This one is running around 19. You better mark the place you are taking this from. Number 19—or 8, isn't it? A. Yes.

Mr. Lyon: What do you estimate that one at, the reading? A. 20, I guess.

Mr. Lyon: Will you go 20 on that one? All right. Agree that was 20.

Mr. Hoegh: Q. Would you run through a calculation of the amount of dilution of the air coming up the back that occurs in the air which is discharged from the upper [22] outlet grille, please?

Mr. Lyon: Are you going to make any more tests? A. We can.

Mr. Lyon: May we have a test? Where is the main volume of outlet in the Coleman furnace? Can we ask that of Mr. Kice, where the main volume of outlet is to the best of his knowledge, so we can make a test at that point?

Mr. Hoegh: Yes, if you wish to indicate there, Mr. Kice.

Mr. Kice: That would be it.

Mr. Lyon: Put your hand on it and we will take a reading there. If we use the funnel where do you think we would get the biggest volume of air? I

Defendant's Exhibit "V"—(Continued)

(Deposition of Henry Landsberg.)

will mark a little 1 under one of them and two dots under the other one, so X one dot and X two. Mr. Witness, can we make a testing at those two points with the funnel? A. Yes.

Mr. Hoegh: Q. Where is the funnel now?

A. At point number——

Mr. Lyon: X1.

A. X1 are you calling that?

Mr. Lyon: Yes. Will you mark the chart now? That is X1 that it is reading on now. Thank you. Can we agree that that reading is approximately 62?

A. Right. [23]

Mr. Lyon: 62. Now, will you try it—let it go to zero and then try X2. Can we say that that is approximately 65?

A. Yes, that is close enough.

Mr. Lyon: 65 he reads on that, he agrees on that one. Now, to get the test on all the places on this machine, I notice you have a tube opening at the very bottom down here, the tube right in the center of the block here. Where does that lead to?

A. Are you asking me?

Mr. Lyon: Yes.

A. Those tubes are not for the purpose of this test. Those are for the purpose of injecting, what was it, titanium tetrachloride.

Mr. Lyon: Are they open now? A. Yes.

Mr. Lyon: Can you get a reading out of there?

A. I imagine we can.

Mr. Lyon: Will you try it? You are now going

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

to make a test at a tube that goes in adjacent to the burner approximately—no, wait a minute now. Where would you describe that, Mr. Landsberg?

A. Which one did you want? This one is coming in and up to here.

Mr. Lyon: Where does this one go?

A. Straight through. [24]

Mr. Lyon: Where to?

A. Into the bottom.

Mr. Lyon: Just under the burner?

A. Just under the burner.

Mr. Lyon: Thank you. Will you now give us the reading, as soon as you can make it, of that position? A. 22?

Mr. Lyon: It is okeh with me. Just write "under the burner" up there, if you can. Now, Mr. Witness, where in this whole setup other than directly coming out of the SO₂ tank would you say you would have the greatest concentration of SO₂?

A. Where?

Mr. Lyon: Yes.

A. Would the greatest concentration be? In the atmosphere in front of the furnace intake.

Mr. Lyon: In front of the furnace intake. Can we make a reading there? A. Sure.

Mr. Percy: Where do you want it?

Mr. Lyon: I want it wherever Mr. Landsberg says there is the greatest concentration in that machine.

A. Well, I will qualify that, as far as greatest

Defendant's Exhibit "V"—(Continued)

(Deposition of Henry Landsberg.)

concentration, I would say the greatest concentration would be there or there, very close to being equal.

Mr. Lyon: That is the input of the input of the [25] machine there we just tested?

A. No, I would say that is a false reading. I would question that reading in that your natural draft is up this way and this tube is right here, so I question——

Mr. Lyon: Well, can you get a measurement of the volume? I don't mean the volume, but of the concentration of the SO_2 that is going into this machine?

A. Yes, we can take it right in front of the furnace there.

Mr. Lyon: Will you do that, please?

Mr. Hoegh: Will you indicate, Mr. Landsberg, where the holes should be drilled?

A. Let's drill one right in there, somewhere.

Mr. Lyon: The place you are indicating that you are now going to drill a hole, I take it?

A. Yes.

Mr. Lyon: Is approximately four inches in front of the outer grille of the Coleman heater through the box which is approximately 30 inches high and three times as wide as the whole Coleman grille, and what is the length of this box?

Mr. Hoegh: The scale is right there, Mr. Landsberg.

Mr. Lyon: Let's just get the dimensions of this

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

box so there will be no argument there later. Six feet long. Four feet wide. And 30 inches high. And the Coleman grille is 15 inches, is that right? [26]

Mr. Hoegh: Yes. Now, take a sample at a point which we will mark number 11.

Mr. Lyon: That is the point I just identified as being four inches in front of the grille, of the Coleman grille, in the center of this box we just measured.

Mr. Hoegh: Yes.

Mr. Lyon: The tube has been run in approximately how far?

A. A little more, more. That is good.

Mr. Lyon: How far in is the tube placed approximately?

A. The tube is about a foot from the floor.

Mr. Lyon: Thank you. This is point 11 that we have been describing. About 60? About 62?

A. Well, since that is the point of injection, I think an average over a little bit longer period might be more representative since this is where your air is being drawn.

Mr. Lyon: All right. It is going on. About 60.

A. About 60.

Mr. Lyon: We agreed it reads about 60.

A. Do you want to move this about any, or leave that as a point?

Mr. Lyon: What?

A. Did you wish to move that about any?

Mr. Lyon: No, that's all right with me. Is there

Defendant's Exhibit "V"—(Continued)

(Deposition of Henry Landsberg.)

[27] any way we can take one of the flue outlet way up at the top?

Mr. Hoegh: I think so if we can connect up the tubing, Mr. Landsberg. We have a very high ladder here.

A. Yes, we have some more tubing.

Mr. Hoegh: What point are you sampling from now?

Mr. Lyon: Approximately the center of the flue.

Mr. Hoegh: Approximately the center of the flue?

Mr. Lyon: Yes. All right. Can we get a reading now? A. All right.

Mr. Lyon: Average about 16, isn't it?

A. Yes.

Mr. Lyon: 16. Now, can we test it right there at the outlet into the attic? They should be approximately the same, shouldn't they? Those are the attic vents. Would you say that is about 14?

A. 14.

Mr. Lyon: That is all right with me.

Mr. Hoegh: Did you wish to check any more points up there?

Mr. Lyon: No, I don't.

Mr. Hoegh: Q. I wish to ask one thing, Mr. Landsberg. In sampling points 5A, B, and C, I noted a difference in the readings. Was there any attempt to check the air velocity coming out of the upper discharge grille at those [28] various points?

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

A. Yes, we checked that last week and found it to be pretty uniform across there.

Q. What instrument did you use to make those tests, the pressure-ammeter?

A. I think that is what it was.

Mr. Lyon: Did you make the tests?

A. I was present when the tests were made.

Mr. Hoegh: A hot wire anemometer.

Mr. Lyon: Have you measured the volume of air going into this unit? A. No.

Mr. Lyon: Or the volume coming out of any of the discharge points? A. No.

Mr. Lyon: I have no more places I want tested.

Mr. Hoegh: We wanted to run various tests on the Coleman 67 with the three foot exchanger. It is now ten to twelve.

Mr. Lyon: Let's go to lunch.

Mr. Hoegh: One thing we would like to do is run some smoke through the 67 with the four foot exchanger while this is on.

Mr. Lyon: What is he going to do, put tetrachloride in there?

Mr. Hoegh: The actual smoke is titanium oxide.
[29] Would you describe the location of the point of injection there, please, Mr. Landsberg?

A. The point of injection is in the center of the back portion of the furnace about one foot up.

Q. What is the direction of injection?

A. Up—or actually out. The injection tube is a quarter inch tube with small holes on the side.

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

Q. Would you, Mr. Percy, please, or I will, I will operate this smoke generator. Would you observe the smoke coming out of the discharge grilles, please, Mr. Landsberg?

A. The smoke can be seen coming out of the discharge grilles.

Mr. Lyon: Actually in this test aren't you forcing that air into the compartment or that smoke into the compartment?

A. It is being forced in somewhat, yes.

Mr. Hoegh: Q. How would you account for the flow of the smoke up along the back?

Mr. Lyon: Would you do that again? I want to see something. The same way you were running it before. Where is the leak up there that that is coming from? I call your attention, gentlemen——

Mr. Hoegh: You may ask the witness. There is no secret.

Mr. Lyon: I call the witness' attention to the fact [30] when he made that test that there was some smoke. Well, he is standing out here. Would you do it again?

Mr. Hoegh: Will you do it again, please? Would you describe all the points from which smoke is emitting at this point, Mr. Landsberg?

A. I see smoke coming out of the discharge grille and I see smoke coming out of the proximity of the attic vents.

Mr. Lyon: Do you see any smoke coming out of the main flue?

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

A. The top of the flue? I don't believe I did. Try it again.

Mr. Lyon: Did you see any smoke coming out of the main grille which is about shoulder high?

A. I didn't observe that. Would you try it again, please? No, I didn't.

Mr. Lyon: This smoke was emitted into the space above the bottom edges of the lower heat exchanger, was it not, and above the intake grille?

A. I don't quite follow you.

Mr. Lyon: Well, we can see it on this one point. You are emitting this smoke on the intake grille which I point out is below, down here around the burner, is it not?

A. Well, on the intake grille on the outside, it is up to here. [31]

Mr. Lyon: I didn't ask that. I said the main intake grille.

Mr. Hoegh: Through the front.

Mr. Lyon: To this heater. I will point out and ask you if this black shoulder, when you open the lower grille, is not the bottom edge of that, is not the bottom intake of this heater? A. Yes.

Mr. Lyon: And none of this smoke was allowed to go up through the main portion of the heater in your last test? A. No.

Mr. Lyon: Thank you.

Mr. Hoegh: Q. How do you account for the emission of smoke from the upper discharge grille, Mr. Landsberg?

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

A. There evidently must be a draft up through there. It didn't go by diffusion in that titanium tetrachloride is considerably heavier than air.

Q. Would you move the smoke generator to one of the other smoke inputs over there?

Mr. Lyon: How much heavier than air is titanium oxide?

A. Tetrachloride. I don't recall the gravity of titanium. Do you, Earl? I would say roughly, certainly more in that the molecular weight of air is 29, the oxide of titanium would be 32, titanium I don't recall, so I [32] would guess roughly on the order of twice.

Mr. Lyon: Now, have you tried injecting smoke into the true inlet of this Coleman heater?

A. No.

Mr. Hoegh: What would you call the true intake?

Mr. Lyon: Where is the inlet on a Coleman heater for air?

A. The bottom portion here, through here, and underneath.

Mr. Lyon: And have you ever tried any smoke tests there? A. No.

Mr. Lyon: I haven't any more questions now.

Mr. Hoegh: We wish to inject smoke on the side of the heater that is now in operation. Would you describe the point at which smoke is now being injected?

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

A. This is a point between the heater and the wall, side wall, approximately one foot up.

Mr. Lyon: Is that point above the normal inlet for the air to this furnace?

A. Yes, slightly.

Mr. Hoegh: Q. When smoke is—I might ask in what direction is smoke injected in this?

A. The smoke will be injected here like as in the first case, through an opening in the tube that is on the side, that is, the opening is on the side of the tube. [33]

Q. The smoke is injected laterally?

A. Laterally rather than vertically.

Q. Would you observe the smoke outlet?

Mr. Lyon: You can let somebody work that if you want.

Mr. Hoegh: Q. Would you describe all the points from which smoke is emitting?

A. I see smoke coming out of the upper vent and also in the proximity of the attic vent.

Q. Would you describe the path of the smoke as it comes up from the point of injection along the back of the lower box, please?

Mr. Lyon: Would you smoke that up again? Oh, I see it. Go ahead.

A. The smoke travels vertically about half way up the furnace between——

Mr. Hoegh: Q. Where?

A. Between the furnace and the wall, and then it begins to diffuse.

Defendant's Exhibit "V"—(Continued)

(Deposition of Henry Landsberg.)

Mr. Lyon: I am going to ask the witness to come up here and observe something.

A. Half way across the back of the furnace between the back wall of the furnace——

Mr. Lyon: Now, will you make that smoke, please? Now, Mr. Witness, isn't it a fact that smoke is not coming out of the grille up there but is coming through between the [34] wooden backing that you put here and the furnace itself?

A. Yes, it is.

Mr. Lyon: Thank you. I would like Mr. Kice or Mr. Blazier to get up and make an examination of this while the smoke is going up. Are you satisfied with what you see, Mr. Blazier?

Mr. Blazier: Yes.

Mr. Hoegh: If you don't mind, I will take a look.

Mr. Lyon: What?

Mr. Hoegh: If you don't mind, I will take a look.

Mr. Lyon: Will it be cooled down by tomorrow so we can see it?

Mr. Hoegh: Yes. I think we might as well turn it off now.

Mr. Lyon: I have a question for the witness. Does titanium oxide in any way affect this instrument you have been using, to your knowledge?

A. No. We can prove that if you like.

Mr. Lyon: Let's take a test. I would like to see what happens.

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

Mr. Hoegh: Q. At what point are you sampling now, Mr. Landsberg?

A. Number 4, I believe it was. No, number 3.

Mr. Lyon: If it had any real effect it would bounce it hard with that amount of concentration.

A. Yes. [35]

Mr. Lyon: All right. Give it some smoke.

A. I see smoke going right by the point of sampling.

Mr. Lyon: It has substantially no effect that I can observe or you can on your machine.

A. Right.

Mr. Lyon: Thank you. Now, may I ask counsel a question?

Mr. Hoegh: Certainly.

Mr. Lyon: Will it be possible to have this graph that we have taken this morning, shall we draw a line across it and mark that the recess period, and don't try to take it off now, but after we are through with these tests will you introduce that graph as an exhibit, please?

Mr. Hoegh: Yes.

Mr. Lyon: And the morning series will be Exhibit 1 to the deposition.

Mr. Hoegh: Would you like to mark it now, Mr. Reporter, before it moves on by?

A. I will stop it.

(Whereupon the portion of the graph indicated was marked as Plaintiff's Exhibit 1 by the Notary Public.)

Defendant's Exhibit "V"—(Continued)

(Deposition of Henry Landsberg.)

Mr. Hoegh: Mr. Lyon, I would like to point out for the record that the heater with the three foot exchanger is turned on and will be left on through the noon hour.

Mr. Lyon: All right.

Mr. Hoegh: It is now 12:00 o'clock. [36]

Mr. Lyon: We will recess until 2:00.

(Discussion held off record.)

A. Notice the zero level has not been repeatedly jumping. The zero level is at 13.

Mr. Lyon: Yes, it seems to go down there.

Mr. Hoegh: Mr. Lyon, I had some pictures taken which show the sample points. I don't see why we can't stipulate that they represent what we have seen here and avoid calling the photographer now.

Mr. Lyon: Oh, yes, we can do that. Can you give us a set to look them over?

Mr. Hoegh: I notice one here, Mr. Reporter, which shows the SO₂ bottle and the paddle wheel showing the method in which the tracer gas is injected. In that one, in order to facilitate taking the picture, the panel here on the right side of the entrance of the tunnel was removed.

Mr. Lyon: Mark that Exhibit 2 for this deposition now.

(Whereupon the photograph referred to was marked as Plaintiff's Exhibit 2 by the Notary Public.)

[See Exhibit 29A in the Book of Exhibits.]

(Noon recess.) [37]

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

Afternoon Session, 2:00 p.m., July 26, 1954.

Mr. Lyon: It is stipulated and agreed to by the counsel for both parties that this deposition was taken with full notice.

Mr. Hoegh: That all the requirements of the Federal rules as to depositions have been complied with.

Mr. Lyon: That is as to notice.

Mr. Hoegh: As to notice.

Q. Mr. Landsberg, has the tuunel now been attached to the front of the Coleman heater with the three foot secondary heat exchanger?

A. It has.

Q. Are the test points numbered on this Coleman heater with the three foot secondary heat exchanger economizer numbered the same way they are on the one with the four foot secondary heat exchanger?

A. The same way.

Q. Would you begin with point number 1, please?

A. Again we have a zero level, as you see, of 13 divisions. We are now testing point number 1. Shall we state this B.T.U.?

Q. Yes. Have you checked the B.T.U. input with the three foot secondary heat exchanger?

A. We checked it at approximately 30,000 B.T.U.

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

Q. That check was done with the wet test meter the [38] same way?

A. The same way as it was tested on the first one.

Q. As soon as that settles out will you give us the reading?

A. I would call that an average of 60.

Mr. Lyon: All right, 60.

Mr. Hoegh: Q. Will you switch the sample intake—

Mr. Lyon: Let it go back to zero first.

Mr. Hoegh: (Continuing) —to point number 2, please?

Mr. Lyon: Or substantially that there. All right.

A. We are testing point number 2.

Mr. Hoegh: Q. Is that settled out enough to make a reading?

A. I think we can call that 60.

Mr' Lyon: Yes.

Mr. Hoegh: Q. Would you put the sample input on point number 3, please?

A. We are testing point number 3. I think about a 55 average there.

Mr. Lyon: All right. That is 3.

Mr. Hoegh: That is point number 3, yes. I don't believe that is marked on there.

Mr. Lyon: You better mark it 3.

Mr. Hoegh: Q. Would you mark the record, please? Switch now to number 4.

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

A. We are testing number 4. I think we can call that [39] 49.

Mr. Lyon: All right.

Mr. Hoegh: Q. Would you now take samples of points 5A, B and C, beginning with point 5A, using a funnel on the end of the sample pickup tube?

A. I would say that has leveled off at 27.

Mr. Lyon: Yes.

A. Let's try 5B.

Mr. Lyon: You better label that. Oh, you have.

A. It looks like a good 22.

Mr. Hoegh: Q. That is for 5B?

A. 5B.

Mr. Lyon: You better wait, let it get to zero there so it will read on the chart here.

Mr. Hoegh: Q. Now put the sample tube at 5C, please. A. 5C. 20?

Mr. Lyon: 20 is good.

A. Let's get 2 and 3.

Mr. Hoegh: All right. A. 2.

Q. Has the sample intake been placed at point number 2 now?

A. The sample intake is on point number 2. That is what I was afraid of.

Q. This bottle is empty, too, you mean? [40]

A. We are not getting as much as we were before. Let's try on 3.

Q. Switch it over to 3, please?

A. Are you on 3 now, Earl?

Mr. Percy: Yes.

Defendant's Exhibit "V"—(Continued)

(Deposition of Henry Landsberg.)

A. I didn't both reading 2 just now because of the drastic——

Mr. Lyon: Substantially 24, wouldn't you say, what it was on the last reading?

A. All right. The concentration is way down. What we were getting before is probably what was left in there. All right. Will you read this, please? 23?

Mr. Lyon: Where did you end it?

A. Did you take it off, Earl?

Mr. Lyon: 23, I guess.

A. This test I believe should be repeated in that our concentration has changed drastically. The input is considerably less than it was before and therefore I believe that the high concentration might have been lying in here and just gradually depleted. We ought to start all over.

Mr. Hoegh: Naturally, this will stay as part of the record.

Mr. Lyon: Well, let's mark this last stack from here up to here where you are going to change as 3.

(Whereupon the portion of the graph indicated was [41] marked as Plaintiff's Exhibit 3 by the Notary Public.)

(Recess.)

Mr. Hoegh: Q. Mr. Landsberg, would you run through a calculation of the amount of solution which we are going to show by these tests for the record, please? Think out loud, perhaps it would be all right.

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

A. Well, we figure the concentration in the back is an average of the sample points 1, 2, 3, and 4 in the first run, and I am using net titration levels. In other words, those readings over and above the zero level which are due to sulphur compound titration. So the average there is 60 and 57 and 60 and 11. The average reading then is 47 in the back.

Q. That is the first one?

A. On the first one. We are not figuring this test at all.

Mr. Lyon: 47 over zero?

A. 47 over the zero level which is 13 or a total of 60.

Mr. Lyon: Yes.

A. Then the readings coming out the vent, 5A, B, and C of this one were 37, 16 and 36. That is a total of—30 is close enough. So your concentration coming out is 30. Now, we showed that going in there were 7 divisions.

Mr. Hoegh: Q. By going in you mean 7 and 8?

A. Points 7 and 8, yes. So now if your air were going in there and out there without receiving any——

Q. In 7?

A. Into 7 and 8 and coming out 5A, B, and C without receiving any sulphur or air containing sulphur from the back of the furnace, the concentration coming out should be 7. So I subtract the 7 from the 30 and it is an increase of 23. 23 divided by 47——

Defendant's Exhibit "V"—(Continued)

(Deposition of Henry Landsberg.)

Q. Pardon me, the 47 there——

A. What was in the back.

Q. Is a net reading above——

A. All readings are net readings.

Q. The average figures which you use, 60, 57, 60 and 11 were all figures taken after the 13 had been subtracted?

A. Right. By definition the net titration level is the level over and above the initial zero or reference level. And all my readings are net titration levels. So you have 23 net increase in the gas coming out the vent, which divided by 47 is 50 per cent, which would indicate that the air coming out of here——

Q. The top grille?

A. The grille has been diluted or mixed with 50 per cent of its volume from air that contained the sulphur compound in the back of the furnace. [43]

Q. Would you state in terms of the amount of dilution that occurs from the air coming up the back rather than, as I remember it, you just termed it as a percentage of the air coming out the top. I mean, what we would like to have expressed is the amount of dilution which occurs due to the air going in through points 7 and 8.

A. It has been diluted. By points 7 and 8, you mean this here?

Q. Air coming up the back has been diluted air going in through 7 and 8.

A. By 50 per cent.

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

Mr. Lyon: I have just got one question. Is there any other source of SO_2 going into this, any part of this instrument, other than from this bottle?

A. No. Will you ask that again, please?

Mr. Lyon: Read it to him, please.

(Question read.)

A. Well, this what?

Mr. Lyon: I will ask this question. Is there any other SO_2 going into this heater instrument other than from this SO_2 in this bottle in this setup?

A. Is there any other SO_2 entering?

Mr. Lyon: From any source.

A. Other than——

Mr. Lyon: From the bottle.

A. From the bottle. Technically, perhaps yes, in [44] that probably a trace of SO_2 is in the air in that we have air pollution, but within the ranges of what we are speaking of, no.

Mr. Lyon: Haven't you already subtracted that by the 13 reading, any air pollution?

A. No, sir. Oh, yes, that would be.

Mr. Lyon: That has been subtracted already, so that doesn't enter into this.

A. That doesn't enter into it.

Mr. Lyon: Thank you.

Mr. Hoegh: Q. Would you also make a calculation of the amount of pollution that has occurred of the air coming up through the back of the heater using only points 2 and 3 at the back of the heater?

A. Approximately 40 per cent.

Defendant's Exhibit "V"—(Continued)

(Deposition of Henry Landsberg.)

Mr. Lyon: What was that, please.

(Answer read.)

Mr. Hoegh: Q. That is taking our test of the amount of air coming out the back from points 2 and 3.

(Discussion held off record.)

Mr. Hoegh: Q. Would you restate what you told me?

A. Well, I keep getting confused as to whether we are speaking of fresh air diluting the air coming up the stack or the back, or the air behind the furnace contaminating this secondary air. As it turned out in the first case it was 50 per cent. [45]

Q. Just so we understand one another, the testimony is that of the air coming out the upper discharge grille, 50 per cent comes up the back around the lower parts and 50 per cent comes in through points 7 and 8? A. Right.

Mr. Lyon: Though you have been lately pointing to the three foot stack model, this testimony all refers to the four foot stack?

Mr. Hoegh: Yes.

A. Our tests on this are theoretical, yes.

Mr. Lyon: Are you through with this testimony?

Mr. Hoegh: Yes, that part of it.

A. Shall we start all over?

Mr. Lyon: All right.

Mr. Hoegh: Q. Let's start with point number 1 again, Mr. Landsberg. What is the heater being tested?

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

A. It is a Coleman heater number 67 with the three foot heat exchanger, at point number 1.

Q. Have the fluctuations settled out so you can give a reading out, Mr. Landsberg?

A. Yes, I believe it is settled down pretty nicely at 60.

Q. Would you switch to point number 2, please?

A. We are on point number 2.

Q. Can you give a reading for point number 2 now?

A. I would say a fair average would be 60. These are [46] gross readings now.

Q. Will you switch to point number 3, please?

A. We are testing point number 3. About 59.

Mr. Lyon: That's right, 59 or 60.

Mr. Hoegh: Q. Would you switch to point number 4, please? That last reading was what?

A. 59. We are testing number 4. An average of 56?

Mr. Lyon: That is all right.

Mr. Hoegh: Q. Would you sample point 5A next, please? A. 30.

Q. That is for point 5A? A. 5A.

Q. Would you switch to 5B, please? Does that appear steady enough to take a reading? A. 26.

Q. That is for point 5B? A. Yes, 5B.

Q. Will you switch to 5C, please?

A. 26.

Q. Point 7. What is the reading for point number 7? A. 17.

Defendant's Exhibit "V"—(Continued)

(Deposition of Henry Landsberg.)

Mr. Lyon: All right, 17 or 18.

Mr. Hoegh: Make it 18.

A. All right. 8.

Q. You are now sampling from point number 8?

A. Number 8.

Mr. Lyon: It should be noted on the record that the taking of the readings of 7 and 8 are not with a funnel. The readings of 5A, B and C were with a funnel. Are you about through with this one?

Mr. Hoegh: Q. What is the reading for point number 8, please? A. Oh, 16 or 17.

Mr. Lyon: All right.

Mr. Hoegh: All right.

Mr. Percy: Do you want to use the funnel on any of these?

A. Why don't we check two or three to see how steady this is?

Mr. Hoegh: All right.

A. We are repeating the test on 2, isn't it 2?

Mr. Percy: Yes.

A. To make certain of the concentration, that it is still constant.

Mr. Hoegh: Q. Which point is this we are now checking?

A. We are taking 2. I want to check and see that the concentration, the bottle not being so full, there might be a pressure drop. It has dropped a little bit. An average of about 55. That would be 42. I guess that is good enough. We have been rushing

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

things a little bit, [48] and didn't allow this to come to an equilibrium.

Mr. Hoegh: The higher figure would be conservative.

Mr. Lyon: Will you mark that number 2 on the chart? What was the last statement?

(Last portion of the record read.)

A. Using the higher figure is leaning toward the conservative side.

Mr. Hoegh: Q. Mr. Landsberg, we have constructed a shield to be placed around the main discharge grille. I would like to have you put that in position and then run checks on 5A, B and C, and 7 and 8 again.

A. Where do you want to put this?

Mr. Lyon: Mr. Hoegh, I am going to have to knock off in about five minutes.

Mr. Hoegh: I would like to make a fast check on this, Mr. Lyon.

Mr. Lyon: All right.

Mr. Hoegh: Mr. Lyon would like to leave at about 4:30. Start with 5A, 5B and 5C.

A. We have rechecked number 2.

Mr. Lyon: Well, let's mark this an exhibit up to this point and then we'll have a new one for what he is doing with the shield. That will be Exhibit 4.

(Whereupon the portion of the graph indicated was marked as Plaintiff's Exhibit 4 by the Notary Public.)

Defendant's Exhibit "V"—(Continued)

(Deposition of Henry Landsberg.)

A. In which case, if this is separate, we ought to [49] reestablish the concentration in the back.

Mr. Hoegh: Well, there is continuity here. I don't think we need to do that.

A. All right. Let's get 5A.

Q. Would you describe the hood that has been placed on the heater and the place in which it has been put, Mr. Landsberg?

A. There is a hood above—what do you call the outlet?

Q. Main discharge grille.

A. Main discharge from the furnace extending five inches outward and on the sides only five inches downward.

Q. It is in the form of an inverted U?

A. It is in the form of an inverted U, wide base.

Q. Will you take a reading at point 5A, please?

A. 28.

Q. Will you now check 5B, please? Would you mark point 5B, please? A. 24.

Q. Check 5C, please. A. 26.

Q. Now, put the sample input at points 7 and 8.

A. Wait a minute, Earl, take it away. Let's a good zero level here because we are getting down to very low concentration.

Q. While we are waiting, this can go on the record, [50] did you have an opportunity to examine those pictures, Mr. Lyon?

Mr. Lyon: No, I will. What do you want about those?

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

Mr. Hoegh: Just I would like to introduce them as representing——

Mr. Lyon: All right. You go ahead and introduce them. Let's do it tomorrow. Let's get through here. I really have got to leave.

A. 15?

Mr. Lyon: I guess it is all right.

Mr. Hoegh: Switch to point number 8, please.

Mr. Lyon: Draw a line there. Switch it. That's it.

Mr. Hoegh: Q. Is that steady enough to take a reading now, Mr. Landsberg?

A. 14, a little over. I guess 15 is closer.

Mr. Lyon: Yes, 15 is all right.

Mr. Hoegh: All right. What are your plans?

Mr. Lyon: Well, we will be back here in the morning at 10:00 o'clock. You can finish your direct on this, whatever you feel like.

Mr. Hoegh: We would like to go early and get going.

Mr. Lyon: That is nigh on impossible, Jack.

Mr. Hoegh: What are your commitments tomorrow? It is not so much tomorrow but just a lot to do before you go. [51]

A. How much time do you think we will have to spend?

Mr. Lyon: We will have all day, I am pretty sure.

Mr. Hoegh: On that basis it won't make any difference whether it is 9:00 or 10:00.

(Discussion held off record.)

Defendant's Exhibit "V"—(Continued)

(Deposition of Henry Landsberg.)

Mr. Lyon: You better mark this last piece.

Mr. Hoegh: We can turn this thing off.

Mr. Lyon: You just bring us the chart tomorrow, that is all we will want. Oh, yes, we want to get in and examine the back of this thing tomorrow, both of them.

(Discussion held off record.)

Mr. Lyon: This last one should be marked Exhibit 5.

(Whereupon the last portion of the graph was marked as Plaintiff's Exhibit 5 by the Notary Public.)

(Whereupon the deposition was adjourned to resume at 10:00 o'clock on July 27th, 1954.)

July 27, 1954, 10:00 a.m.

Mr. Hoegh: We can start taking the back off of this one.

Cross Examination

Q. (By Mr. Lyon): Before you take it apart, do you know who constructed these models?

A. Holly.

Q. Do you know why they were constructed the way they were?

A. I presume to make these tests.

Q. You didn't have anything to do with it?

A. No, other than devising the means of introducing the sulphur from that tunnel.

Q. Was it your idea where to take these tests from?

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

Mr. Hoegh: How do you mean that?

Mr. Lyon: Q. Were you instructed by any person where you were to make these tests from?

A. Well, there was a general discussion as to what we were after, and I imagine you could say that we more or less decided where the samples which would indicate what we were looking for should be taken.

Q. It was part of your judgment where these samples should be taken and how they should be taken?
A. Yes. [53]

Q. Now, I call your attention to the heater on the inside here, this glass panel, this is the Coleman old style economizer furnace with the four foot stack, is it not?
A. Right.

Q. Now, how far are the vertical ribs running up the back of this furnace from this glass?

A. You mean how far up?

Q. Now, how far from the glass are they here?

A. Still I don't quite understand.

Q. How far is this rib from this pane of glass at the bottom, I am asking?
A. I can't see.

Q. You can't tell?

Mr. Hoegh: Do they appear to be touching? Is that what you are interested in?

Mr. Lyon: Q. Yes, is it touching down there?

A. It is quite close. It would appear to be touching, yes.

Q. How about it up at the top?

Defendant's Exhibit "V"—(Continued)

(Deposition of Henry Landsberg.)

A. I think it is perhaps a little farther in, that is, not touching.

Q. About how far would you say it was in?

A. Perhaps a quarter of an inch.

Q. And it is touching at the bottom?

A. Yes. [54]

Q. Why was the furnace in this model, if you know, tilted over at that angle?

A. I don't know.

Q. You don't know?

Mr. Hoegh: I would like to correct the—direct the witness' attention to this plate here, the bottom of the secondary heat exchanger, and ask him whether or not that is touching the glass?

A. As near as I can see, it is.

Mr. Hoegh: Will you also notice that extending down through the header plate is what we termed a male connection with the flue? A. Yes.

Mr. Hoegh: And what extends into that male connection? It would be a female extension?

A. Yes, it would be a female extension. The male extends to that. I presume this is part of the furnace here.

Mr. Hoegh: And would that male extension which extends into the female extension of the flue position the top of the lower box?

A. Yes, I believe it would.

Mr. Lyon: Q. Now, I call your attention to the fact that this entire box, the top corner of it, is

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

approximately a half inch in from this header member, is it not? A. Yes. [55]

Q. Down at the bottom it is almost out, as close to it as you can get it out; the only space is the width of this flange. A. Yes.

Q. All right. You can take it apart any time you want.

Mr. Hoegh: I think we have established that this location of the top of this box is due to the construction of the box itself and has nothing to do with the construction of the whole——

Mr. Lyon: I don't know what has been established. That is to be seen.

Mr. Hoegh: All right. Do you want to take the back off of it?

Mr. Lyon: Q. By the way, before doing that, Mr. Witness, when you made tests on these two machines, did you in any way check to determine the B.T.U. content of the gas being used?

A. No.

Q. Thank you. Mr. Landsberg, why did you choose points 1, 2, 3 and 4 as the points for your test?

A. We believe that at that point or in the vicinity of those points, rather, the gas, the samples would be representative of the gas or air in that area or moving up this stack.

Q. Why not, say, half way down? [56]

A. Half way down probably would have been just as good. However, the farther up the more

Defendant's Exhibit "V"—(Continued)

(Deposition of Henry Landsberg.)

homogeneous the sample is we would probably get.

Q. What do you mean by homogeneous sample?

A. Thoroughly mixed.

Q. Thoroughly mixed.

A. With sulphur, constant readings.

Q. Then it is not necessarily true that the gases are thoroughly mixed up here, is it?

A. If you will notice, when we were recording with the Titrilog, the line was waving back and forth to a degree. Perhaps a little farther down it would move a little more.

Q. Actually, there was about on every reading, there was about a 15 per cent error, wasn't there?

A. Not a 15 per cent error. There was a 15 per cent variation. I wouldn't say necessarily 15 per cent. I know there was some variation and we averaged those readings.

Q. Yes. Do you believe that that accuracy of those readings in any way can be compared with your earlier testimony that this instrument was accurate to whatever reading you gave, what per cent?

A. What you are speaking of is not accuracy.

Q. I just want to be sure. Does that not affect the accuracy of the instrument?

A. The accuracy of the instrument is in no way affected by the type of sample or sampling that we do. [57]

Q. You mean you can just grab a sample anywhere and the reading of that instrument is going

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

to be accurate to I think you said 100 to 1 per cent or 10 to 1 per cent or something like that?

A. I never said any figures approaching what you just mentioned.

Q. All right. A. You are confusing——

Q. What is the accuracy?

A. You are confusing accuracy and sensitivity. The sensitivity of the Titrilog, a threshold sensitivity is somewhere in the order of one part in ten million, meaning that we could see that small an amount. The accuracy of the instrument is determined by calibration. The accuracy of the instrument can be made, naturally, within certain limits as accurate as you like by the frequency of the calibrations. We have established that by calibrating the instrument, oh, in the order of once every 24 hours the accuracy would be in the order of 3 per cent, 3 or 4 per cent, I don't recall the exact figures.

Q. By that you mean——

A. By that I mean is that the reading that we established and the concentration we would establish would be within 3 per cent of the absolute value of that which was present.

Q. Then if the instrument—your statement still [58] stands when the instrument shows a variation it is from time to time—pardon me, let me finish my question—of the same reading at the same point at 55, and the next time you take that point it is 60, that that accuracy is still within 3 per cent?

Defendant's Exhibit "V"—(Continued)

(Deposition of Henry Landsberg.)

A. Again, that is not the accuracy of the instrument. We were introducing sulphur dioxide into the tunnel and the amount or the diffusion of the sulphur dioxide through the tunnel into the furnace and the further diffusion of the sulphur dioxide in the air that was behind this furnace might be varying somewhat, and that is the reason we took a test over a period of time and averaged the readings.

Q. Then you had, as I remember the figures yesterday, we had a normal of 13 reading, didn't we?

A. That is our zero level.

Q. Yes. And at one time you gave a reading at point number 2 or number 3 of the model which gave a 60 reading, didn't you?

A. Right. Well, as I said, I figured roughly——

Q. Have you those figures?

A. I have those, yes. Which test are you referring to? Either one would be the same.

Q. The last test that was run on this three foot stack.

A. Yes, I had a net of 47 which would be a gross [59] figure of 60.

Q. Later you took a reading at point 2 which gave you a reading of 55 or a net difference from zero of——

A. Of 42. Those are reversed. You said it was 60 at 2 and 55 or 56 or 59.

Q. 55 it was the second time you took it here as I can show you on the chart here.

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

A. 55 was at point 4.

Q. No. The reading which you may read on point 2 shown on Exhibit 5 here. I call your attention to it.

A. Oh, I didn't know which reading. I see what you mean.

Q. That one read 55.

A. Both points read that.

Q. That was 55. Now, at point 2 earlier on the same run it was at 60, was it not?

A. Right.

Q. Now, that reduces—by reducing that to zero you come out with 42 and 47? A. Right.

Q. Which automatically makes a difference of around between 11 and 12 per cent, does it not, between the readings? A. Yes, it does.

Q. Then the readings of your instrument could vary on that one test alone 12 per cent, could it not?

A. You say—would you repeat that, please?

Q. I say the readings of your instrument alone at that one point for those two tests varied in the order of 12 per cent, did it not?

A. The readings of the instrument at that point at two different tests varied that much.

Q. All right. Now, I noticed yesterday that when you took some tests you just used the open end of a copper tubing, did you not?

A. Right.

Defendant's Exhibit "V"—(Continued)

(Deposition of Henry Landsberg.)

Q. And at other times you took tests with a funnel over that. A. Right.

Q. Now, would not the funnel concentrate and prevent outside air from mixing with the sample more than without the funnel?

A. No. Where we did not use the funnel it was intended to take the air only as it was going in and not obstruct the passage of the air. When we used the funnel up at the points 5A, B and C, we were attempting to get as large a cross-section of sample as possible, and that was outgoing air.

Q. Wouldn't that tend to concentrate the sample?

A. That would definitely not tend to concentrate the sample.

Q. In other words, you have have no contamination of the sample, no greater contamination of the sample with [61] the tubing alone and the small hole picking out all the atmosphere in this room and where you concentrated it with a funnel?

A. No, sir.

Q. Why did you use the funnel up there?

A. To get a larger cross-section of air that was coming out of the point.

Q. Actually you shut out the outside air from going into this thing, didn't you?

A. It is possible we did that, too, because the air there we were interested in was not out here in front of the flue or the—what do you call that

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

—the grille, but immediately as it was coming out of the grille.

Q. If you wanted a true sample of the air in that upper stack to compare with any other sample, shouldn't you have stuck the tubing inside the stack like you did in your other samples?

A. We could very easily have done so but then we would have specifically three points, 5A, B, and C covering a very narrow area.

Q. Isn't that what the other tests covered, just a very narrow area?

A. We probed with the other test there in that this was considered only. We were interested in the air going in in this area above it, not coming out.

Q. Wasn't the tests on points 1, 2, 3 and 4 merely [62] taken through an eighth inch opening?

A. We have four points there.

Q. You had three up here in a much smaller area.

A. We would be very happy to put the funnel on here. We would have to have had to enlarge the holes and so change the flow conditions on the furnace. We were trying to disrupt normal flow conditions as little as possible.

Mr. Hoegh: Would you think about that a moment?

Mr. Lyon: Q. Did your sampling disturb the natural flow?

Defendant's Exhibit "V"—(Continued)

(Deposition of Henry Landsberg.)

A. I don't believe so. We kept our volumes and openings in construction practically to nil.

Q. The volume of air that passes through between this, the glass, and the back of this furnace, was what?

A. I don't know the volume that passes up through the back there. I would say the thousand cc sample we took from there was a mere fraction of the total.

Q. Do you know the pressure that is in there?

A. I imagine it was very close to atmospheric pressure.

Q. How much above atmospheric would it be?

A. I really don't know whether it is above or below, it is very close.

Q. Would any gas rise in there if it was below atmospheric pressure? If it was at atmospheric pressure, would any gas flow in there? [63]

A. Radiation would make it flow.

Q. A very minute flow of radiation?

A. Yes.

Q. It is a difference in temperature, isn't it? It was a difference in temperature that causes the flow?

Mr. Hoegh: By that you mean the difference in temperature which causes a difference in pressure, Mr. Lyon?

Mr. Lyon: Well, between this portion of this and this portion, It causes——

A. The flow is caused by the difference in tem-

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

perature over the entire stack, and you have the sensitometer effect.

Q. Did you at any time correlate your tests to determine any of the temperatures?

A. No, we established that merely by the B.T.U. input to the furnace.

Q. Do you have any idea what the temperature at point 2 is? A. No.

Q. That is, during these tests? A. No.

Q. Or what the temperature was at the bottom of the furnace? A. No.

Q. Now, were either of these models operated under the conditions that they would operate in the wall where they were used for heating purposes? [64]

A. Well, I presume these models are supposed to simulate that condition.

Q. Well, I am asking you, you made the tests and you are trying to testify. As I believe, you tried to prove something. Now, were these models at the time these tests were made in the operating condition that these furnaces were manufactured for? A. I would say very closely.

Q. How about that big box in the front end? Do you use any such thing as that when you are heating a house?

A. No, but we figure it doesn't create any abnormal condition in that volume there is more than ample to what the furnace normally draws.

Q. To lock this furnace off in this direction

Defendant's Exhibit "V"—(Continued)

(Deposition of Henry Landsberg.)

Q. Here, wouldn't you heat the air in this box at all times?

A. I would say perhaps you warmed it up some.

Q. And in these furnaces, I don't know whether you are familiar with it or not, aren't these furnaces run under a very close tolerance as to the heats that they can build up inside of them?

A. I am not familiar with that.

Q. You are not. But this box would increase the entire heat in all the furnace, would it not?

A. Due to the volume involved in this box which is quite large, I would say very little. [65]

Q. You didn't make any test to find out, though, did you? A. No.

Q. Did you check temperatures on these exhibits in any place? A. No.

Mr. Lyon: Have you got the back off that?

Mr. Hoegh: Yes. Mr. Landsberg, would you measure the distance between the stud facing in this test setup on the wall heater with the four foot heat exchanger at the top and at the bottom?

A. This distance here?

Mr. Hoegh: Yes, between the two studs.

A. Three quarters of an inch.

Mr. Hoegh: No, I am sorry, from one stud over to the other stud.

A. Oh, I see. Fourteen and a half inches.

Mr. Hoegh: That is at about three inches below the top of the lower box?

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

A. About three inches below the top of the lower box.

Mr. Hoegh: Would you also measure it at the bottom? A. Fourteen and a half inches.

Mr. Lyon: What was the last?

(Answer read.)

Mr. Lyon: Fourteen and three eights, is it not?

A. Yes. [66]

Mr. Hoegh: Would you measure——

Mr. Lyon: Wait a minute. Could I have the answer to what the problem was?

A. Fourteen and a half.

Mr. Hoegh: Would you measure the width of the studding itself, please?

A. Four and a quarter.

Mr. Hoegh: You have got it hooked on the wrong thing. A. Three and a half.

Mr. Hoegh: Would you measure, please, the distance from the header plate of the secondary heat exchanger to the base upon which the lower back rests?

A. All the way down to the base?

Mr. Hoegh: I believe the width of the scale is two inches.

A. Two inches. Put it back, please.

Mr. Lyon: Is that where you want it measured?

Mr. Hoegh: Yes.

A. Fifty-eight and three quarters.

Mr. Hoegh: I guess we are ready to take off the back now, unless you have further questions.

Defendant's Exhibit "V"—(Continued)

(Deposition of Henry Landsberg.)

Mr. Lyon: Q. Well, I notice at the top of this four foot Economizer model there is a sheet metal angle that goes up and engages in the Economizer. Is that straight or bent outwardly?

A. The top is bent downward just a little bit.

Q. Does that force the top of the whole box in away from what was the glass partition?

A. You mean this portion here?

Q. Yes.

A. Yes, it would a little bit.

Q. If that was straightened, the back of the lower back would have been against the glass partition all the way, would it?

A. It would be closer.

Mr. Lyon: You can take the back off.

Mr. Hoegh. All right.

Mr. Lyon: Q. Did you ever during this test make any measurements of the amount of SO_2 you were putting in this machine?

A. Amount of SO_2 ? You mean amount or concentration?

Q. Amount. A. No.

Q. Will not the concentration of SO_2 and air vary according to the temperatures and pressures on it? A. No.

Q. Does not the concentration of SO_2 when mixed with another gas vary when the gas is expanded by the addition of air?

A. I don't believe I can answer that question. I still don't understand.

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

Q. Did you make any attempt to be sure that during [68] your test the samples you drew were under the same pressures and temperatures?

A. A gas such as SO_2 in air, if that mixture is taken and heated or compressed the concentration will remain constant.

Q. But the amount of SO_2 that you permitted to go in from the box out here is going to alter the concentration?

A. The amount that is injected from the SO_2 bottle will determine the concentration.

Q. Now, you made tests at points 1, 2, 3, 4, all of these places; did you measure the amount that was being put into the machine during those tests?

A. I was only interested in concentrations, not amounts.

Q. Wouldn't the concentration vary as that amount being injected into the machine is varied?

A. Which machine?

Q. The entire setup that you had here.

A. I think I better hear that again.

Mr. Lyon: Read it again.

(Pending question read.)

A. Wouldn't the concentration vary as the amount being injected into the machine—we were not, injecting the SO_2 from the bottle or—

Mr. Lyon: Q. I am talking about the whole setup. [69] That isn't the furnace. You have got the box.

Defendant's Exhibit "V"—(Continued)

(Deposition of Henry Landsberg.)

A. The concentration would vary as the amount that is being injected in from the bottle.

Q. And, in fact, at times that concentration at the same two points varied as much as 12 per cent, didn't it, during the tests you made?

A. At different times.

Q. How do you know you weren't at the bottom limits of concentration at the points 5A, B and C and at the top limits at 1, 2, 3, and 4, when the tests were made?

A. I do not know that for sure, except the time interval was short and also in the calculations, I doubt if it would have any appreciable difference, the percentage would not carry though.

Q. Well, if you take the percentage at the bottom that you found here and the top up there, it varies over 50 per cent, doesn't it, by your own figures?

A. The concentration here and the concentration up at the top?

Q. Yes.

A. Were different by some—

Q. The final statement of what the per cent that went from here, from the bottom end into the top end of SO₂ would vary as much as 50 per cent, from your own calculations, wouldn't they?

Mr. Hoegh: Did you say varied from—I don't understand [70] the question, counsel.

Mr. Lyon: Q. If you take the top limits up there or here and bottom limits up there that you

Defendant's Exhibit "V"—(Continued)

(Deposition of Henry Landsberg.)

got in your calculations, against the bottom limits here and the top limits up above, you got a variation of over 50 per cent? A. No, sir.

Q. Well, will you calculate those two for me then? Show me why you didn't.

A. All right. Now, what is it you would like me to calculate?

Q. All right. You show me how you calculated any air that went from the back of that thing into the upper heat exchanger. You go through the calculations all the way that you testified to yesterday.

Mr. Hoegh: If you want to limit it to that, yes, we will go ahead, Mr. Landsberg.

A. Go through the formulation or just the calculations?

Mr. Lyon: This is cross examination. He testified that there was some air went there from up there and he tried to give us a volume by this. I want him to show us the exact figures that he did with that. A. Okeh.

Q. How did you do it? Figure it out again. I don't want it from the one you used yesterday.

A. This isn't the one I used. I want to establish the formula by which we do it. [71]

Q. All right.

A. We will call V the volume coming out of the top grille.

Q. How did you determine that volume?

A. I am calling it V. There is no quantity.

Defendant's Exhibit "V"—(Continued)

(Deposition of Henry Landsberg.)

Q. No quantity?

A. Y is the gas entering through 7 and 8 there.

Q. All right. Is there any quantity or volume figured there? A. No quantity.

Q. And no volume?

A. No volume. X is the gas which finds its way from the lower portion of the back furnace into the upper portion and out this upper grille.

Q. Now, how do you know there is any such thing?

A. It can come out zero, if there isn't.

Q. How do you know that? How do you determine that factor, it will come out zero or come out 100?

A. That is what I am going to show.

Q. All right.

A. Therefore, V is equal to Y plus X. Now, we know V will be Y going in.

Q. How do we know that formula, what did you—where did you assume that V has a relation to Y and X? How did you establish that?

A. There is air coming out at the upper grille V. [72] Where else could it come from?

Q. All right. That is my question. How did you assume that any air coming out of there came from any place? You haven't determined that. You are making an assumption that the air coming out of there is the combination run of air entering here and air coming up the back of this machine.

A. That is an assumption I made when I saw

Defendant's Exhibit "V"—(Continued)

(Deposition of Henry Landsberg.)

a sketch of the furnace and I could see no other place where any appreciable or if any air could come from, that is, if it is coming out, it has got to go in somewhere.

Q. That was an assumption. Now, you can go ahead. That is the assumption upon which you based the formula V equals Y plus X .

A. Right. Now then, we tested these spots here.

Q. How did you test those?

A. This is with the Titrilog, these readings that we have gotten.

Q. All right. Explain it. The court didn't see this. I want it stated.

A. These points have been—the points 1, 2, 3, and 4 were tested with the Titrilog and they resulted in readings. Those readings, if you like, can be computed into any figure you like such as grams or milligrams or parts per million. However, I think it can be proven that the reading itself is sufficient since it is all a relative [73] type of calculation. So we will take that reading as a unit, we will just use units.

Q. That is no test in volume, though, is it?

A. No volume. This is strictly the reaction on the Titrilog.

Q. That is no measure of the velocity of any air in there? A. No, this is a reading.

Q. The Titrilog doesn't even show you that there is any air passing through there of velocity, does it? A. No.

Defendant's Exhibit "V"—(Continued)

(Deposition of Henry Landsberg.)

Q. Or the volume of it?

A. No. All right. So we have established the relative concentration of points 1, 2, 3 and 4.

Q. Concentration of what? Now, let's get it.

A. Concentration of sulphur dioxide.

Q. In what?

A. In the air moving behind the furnace.

Q. You mean in the air?

A. Behind the furnace.

Q. That's right. But not moving, you didn't establish it was moving?

A. I saw it was moving once when titanium tetrachloride was injected.

Q. All right.

A. All right. Then we tested points 5A, B and C [74] which is at volume V and established the relative concentrations there. Then we established that at points 7 and 8, which is my volume Y entering the upper heat exchanger. We established the concentration of the gas, the sulphur dioxide concentration or relative sulphur dioxide concentration of the air that is going into that grille. Therefore, and the readings were at the average readings at V.

Q. Take them on the second machine, will you, please?

A. At V the concentration or relative concentration was 13.

Q. At V. Now, where was point V?

A. V, outlet of the grille.

Q. That is the point 5A, B and C.

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

A. Right, the average.

Q. That was the average that you got?

A. Yes.

Q. And that was what?

A. Which reading, set of readings would you like, before or after we put the hood over there?

Q. Before.

A. Okch. That was 14. That concentration times the volume V would be the amount of sulphur——

Q. But you don't know what V is?

A. I don't know what V is. I don't care. That is equal to the amount of sulphur that is going in with Y, which [75] would be four times Y.

Q. Where is Y?

A. Y is the air, gas or air going in points 7 and 8.

Q. All right.

A. Plus the sulphur concentration, relative concentration at points 1, 2, 3 and 4.

Q. Why isn't it 17 instead of 4? Why isn't it 17?

A. It didn't test out to be 17.

Q. Oh, that's right. Pardon me.

A. Plus the concentration at 1, 2, 3 and 4, times the volume X, which I also do not know. And that was 46. Therefore, the amount of sulphur moving up there is 46 times X. Solving these two equations simultaneously would give me 10 V equals 42 X.

Q. In other words, your statement then is that

Defendant's Exhibit "V"—(Continued)

(Deposition of Henry Landsberg.)

the volume up here is one quarter of the volume down here?

A. I haven't stated any figure yet.

Q. Oh, all right. Go ahead.

A. The volume X, moving up behind the furnace into volume V which is coming out the upper grille, is 24 per cent of——

Q. If there is any such motion.

A. I am not—I am saying it is by my figures and my tests.

Q. Now, will you calculate that? Make the same calculations, knocking five points off as you did at points 1, [76] 2, 3 and 4.

A. All right. Knocking five points off 1, 2, 3, and 4?

Q. Of your average at points 1, 2, 3, and 4.

A. You want me to go through the whole works?

Q. That would be 41 for your average, would it not, instead of 46?

A. 41. It would be 10/37ths. That would be 27 per cent.

Q. That would be 27 per cent. And that is a difference of three points in eight, is it not, or three points in nine per cent?

Mr. Hoegh: One point in nine.

Mr. Lyon: Q. That is a difference of approximately $12\frac{1}{2}$ per cent, isn't it, between the two readings?

A. That is a difference of $12\frac{1}{2}$ per cent of the per cent.

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

Q. That's right. In other words, your machine gave you a reading $12\frac{1}{2}$ per cent apart, did it not?

A. The final result was 12 per cent or $12\frac{1}{2}$ per cent of the per cent difference different.

Q. I mean you calculated the volume up there and the per cent of that volume? A. Yes.

Q. Now, you have calculated it on two sets given you by the machine. [77] A. Yes.

Q. Isn't there a 12 per cent difference in that answer? A. I will say——

Q. In that answer.

A. One result was 24 per cent. The other result was 27 per cent. The difference between the two is 12 per cent of the per cent.

Q. That's right. Now, you didn't make any further tests to determine whether or not the volume up at the top had decreased, did you, when you made that second run in the back?

A. I didn't check any volumes.

Q. You didn't check every time you checked up here, you didn't check at 5A, B and C, you didn't check it at 7 and 8 simultaneously, and you didn't check back 1, 2, 3 and 4 to see that your readings were constant, did you?

A. None of the readings were taken simultaneously, but all of the readings were taken over a very short period and all the readings were taken over a time to indicate that concentrations were remaining relatively constant, and if you will note

Defendant's Exhibit "V"—(Continued)

(Deposition of Henry Landsberg.)

that I immediately caught it when this thing changed here by a recheck on this furnace.

Q. Did you not make your readings in a line one after the other and yet immediately after finishing up at 5A, B, and C, you went down again to 2 and discovered that some [78] place you had a five point difference?

A. I wasn't worried about a five point difference. I was worried about drastic differences.

Q. Isn't a 12 per cent difference in an answer quite an unscientific approach to anything?

A. Not necessarily so at all. It depends on what you are doing, the manner in which you are doing it.

Q. You might have had a 12 per cent difference up there the second time you measured it, couldn't you? You didn't bother to test it?

A. I can't answer that because I never had a 12 per cent difference in a reading.

Q. Was there any attempt made to keep your volumes constant?

A. Volume of the—which volume?

Q. The volume of airs flowing through, through this machine, we call the whole works.

A. Attempts were made in keeping the volumes constant by operating the furnace at normal B.T.U. rating, assuming under those conditions that——

Q. You don't know what the B.T.U. rating is, do you?

A. I have heard that these are normally operated at 36,000 B.T.U.'s.

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

Mr. Lyon: I will move that that answer be stricken.

Q. Do you know of your own knowledge under what conditions these were running yesterday? [79]

A. No, I don't know what they are rated at. I think they were running at 30,000 B.T.U.'s.

Q. How do you know that?

A. I know the volume of gas being introduced into the furnace. I know the type of gas that is being introduced into the furnace, and I know very closely the approximate B.T.U. content of that gas.

Q. Isn't it a fact that the B.T.U. content of that gas could vary as much as 10 or 15 per cent?

A. Not 10 or 15 per cent, no, sir.

Q. You didn't bother to check the B.T.U. content?

A. No, I didn't check the B.T.U. because it is El Paso natural gas and I know how closely they check the B.T.U. content, and this is the gas that we are using.

Q. How much would it change in changed temperature? A. The gas——

Q. The B.T.U. content of that gas.

A. Over what? How much change in temperature?

Q. Well, any change.

A. It would change as the volume of the gas would change.

Q. That's right. And the temperature changes would change the B.T.U. content, wouldn't it?

Defendant's Exhibit "V"—(Continued)

(Deposition of Henry Landsberg.)

A. Right.

Q. Now, at what temperatures were you—do you say that you have personal knowledge these B.T.U. ratings [80] were made?

A. They are generally made, I think, at standard conditions which is——

Q. I mean that you have done yourself. I don't want anything somebody told you, only what you saw done or did.

A. I haven't checked the B.T.U. content of this gas.

Q. Then how can you state other than from what somebody else told you that this machine was operating at 30,000 B.T.U.?

A. Well, I will state this way, that I know I measured the quantity of gas being introduced into this machine, I also know that it is natural gas that is being introduced. I will leave it at that.

Q. Isn't it a fact in testing these machines for approval by the A.G.A. they require you to make a test of the B.T.U. units of the gas that is being put into them?

A. That is true, but these machines are used all over the country, and all over the country the B.T.U. content of gas, which might be either natural or manufactured or mixtures of those, will vary drastically.

Q. That's right. And they will not accept the gas company's statement that it is such and such B.T.U. rating, will they?

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

A. Who will not accept?

Mr. Hoegh: I will object to that. [81]

Mr. Lyon: In making such a test to determine——

Mr. Hoegh: I will object to that, counsel. This man isn't familiar with A.G.A. procedure.

Mr. Lyon: Q. Why wasn't this machine, even assuming that your figure of 30,000 B.T.U.'s is correct, why wasn't this machine operated at its normal rate of 35,000? A. I don't know.

Q. For the purpose of this test.

A. Other than the fact it is my understanding that it was operated at a lower B.T.U. content so that our answers would be conservative in that a higher B.T.U. content, the air intake would be greater.

Q. How do you know that? What air intake?

A. Into the furnace.

Q. How do you know that that would vary where the gas went?

A. I don't know for sure.

Mr. Hoegh: For the benefit of counsel, I can establish why we operated that heater——

Mr. Lyon: I just want this man's testimony. If you have got another witness——

Mr. Hoegh: You are entitled to that.

Mr. Lyon: Q. Now, did you make any correlation between the concentration of the SO₂ anywhere in this machine and the volume or velocity of the gases going [82] through?

Defendant's Exhibit "V"—(Continued)

(Deposition of Henry Landsberg.)

A. I didn't follow that.

Mr. Lyon: Read it.

(Question read.)

A. Going through what?

Q. The machine.

A. Correlation of it?

Q. Through the heater.

A. I don't know if I quite understand it, but I think the answer is no.

Mr. Hoegh: I would like to call to your attention, counsel, that we did have testimony yesterday that velocity checks were made on the output of the secondary heat exchanger.

Mr. Lyon: Q. Now, could you get a greater concentration of gas in the furnace than you put into it?

A. How could we get a concentration, you are speaking of sulphur dioxide?

Q. That's right.

A. How could we get a greater concentration of sulphur dioxide?

Q. At any point in the furnace.

A. Than what was put into it?

Q. Yes. A. I don't know of any.

Q. Well, I will call your attention to the fact that [83] at point number 11 in the first test, you check these figures, please, if you have them, or get them off the exhibit.

A. Point number 11, where is that?

Q. That was the hole in the box there.

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

A. Yes.

Q. That was taken at the, I believe you said that that was the intake to the furnace?

A. Yes.

Q. Now, wouldn't that be as great a concentration as you could ever have of SO_2 in the furnace?

A. If it is not mixed with air coming from elsewhere.

Q. That's right. If it was mixed with air it would be less, wouldn't it?

A. It would be less, yes. It wouldn't be any more.

Q. Will you try to explain to me how the reading at point 11 during these tests you made yesterday was 60? In other words, 47 above normal, and yet at the points 1, 2, 3 and 4 the reading was 70 and 73 or 60, 57 to 60 above normal.

A. Considerable, not considerable but some time had elapsed between the two tests and evidently our tank was going dry because shortly after we started, we moved over and started the next test, it completely depleted.

Q. Wasn't it possible that that concentration was varying all the time during that test? [84]

A. It is possible that the concentration was varying somewhat during the test. In fact, it was in—that is the reason we never established a completely straight line on the record, but took average readings, and the difference between the two—between the highest and the lowest were in the order of,

Defendant's Exhibit "V"—(Continued)

(Deposition of Henry Landsberg.)

oh, it varied quite drastically, but I would say a maximum of 10 per cent.

Q. Now, your first tests of points 1, 2, 3, and 4, these were run almost at the same time, weren't they?

A. Very closely, yes.

Q. Very closely. And I call your attention to the fact at point 1 and 3 the readings of the machine was 73, was it not?

A. Points 1 and 3, yes.

Q. And at point 2 it was 70, was it not?

A. Right.

Q. Now, at point 4, what was it?

A. 11, or 24.

Q. 24. That's correct. Now, will you please explain the discrepancy there?

A. Very possibly or very probably a channeling of the gas. That is again the reason we have taken a cross-section there, in order to get an average.

Q. Isn't it a fact that if the concentration goes up at any point in this machine above what went into it at the opening, it would have to be because there was a [85] stagnation point and the SO₂ was staying there?

A. The SO₂?

Q. Because of its weight rather than passing out with the lighter air.

Mr. Hoegh: Counsel, I would like to have you keep your hypothetical question to facts. I don't believe there has been any testimony that there was stagnation.

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

Mr. Lyon: I believe there was here.

Mr. Hoegh: Or that there was a higher concentration at the back than in the front a particular instant.

Mr. Lyon: I claim the tests show that there was no flow in there at all.

Q. Now, isn't that the only way you could get that higher reading?

A. I have lost you. Higher reading where?

Q. That you could get a higher concentration any place in the furnace than at the input would be because there was no flow.

A. I have not——

Q. No concentration.

A. I have not stated that.

Q. I didn't say you stated that. I said isn't it a fact that that is the only way you could get such a reading? A. No, sir.

Q. How other did you get it? [86]

A. I believe you can get it that way because the SO_2 , even though the higher gravity, if it will do anything it will fall down, and the concentration that we were putting in, I don't believe gravity would enter into it in that we are only injecting in seven parts per million.

Q. All right. At the point under the burner here, what was the reading you got there of concentration when you took it under the burner?

A. Under the burner, as I recall the reading, it

Defendant's Exhibit "V"—(Continued)

(Deposition of Henry Landsberg.)

was quite low, but again—well, it was quite low. It was on the outer edge and it was very conceivable that the gas is flowing right by it and channeling and leaving a void space, not a void space but a dead air space there.

Mr. Hoegh: I didn't get that.

Mr. Lyon: Q. What was the purpose of the mixer then if air was going to be in this furnace?

Mr. Hoegh: Pardon me, counsel. I didn't hear the last answer.

(Last answer read.)

A. The purpose of the mixer was to mix the air before it entered the furnace.

Mr. Lyon: Q. Mix the air with what? Go ahead.

A. To thoroughly mix the air with the SO_2 as it entered the furnace.

Q. Is there anything in here that could have separated that mixture in these furnaces after it was mixed? [87] A. No.

Q. Then how can you get a channeling of that mixture?

A. Very possibly the air was lying in there and just stayed in there or is coming from the back.

Q. Oh, wait a minute. Then it was possible for air to be admitted from the back of this furnace during this test, too?

A. I presume some air, yes.

Q. Was there sufficient to make this quite sizeable drop in concentration?

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

A. No, no. Well, that is the reason we tested further up on the stack, so that if air did come from other sources the mixture would be homogeneous at the point that we analyzed.

Q. Would you show me on the model over here were there was any place for the air to get in the back of it?

A. Let's see, the glass was all the way down to here. Well, from the looks of things I don't believe air could have gotten in through the back. But this air, when the tests were started was present and it could very well have remained there.

Q. Did you make any test to determine whether or not there was a homogeneous mixture of this sulphur and this air?

A. Our record will indicate how homogeneous the mixture was, the degree of fluctuation of the record as it [88] was being taken.

Q. But we have no, substantially no mixture at the only inlet to the back of this thing and we have a high mixture at the top of it, high concentration.

A. I will not attempt to answer why the concentration here was low. I don't know. There might be various factors. I was primarily concerned with the concentration of the gas in the upper portion of the area behind the furnace.

Mr. Lyon: Would you read that?

(Answer read.)

Mr. Lyon: Q. Now, was the reading made at

Defendant's Exhibit "V"—(Continued)

(Deposition of Henry Landsberg.)

the point under the burner before or after the reading was made at point 11?

A. The reading under the burner was made before point 11.

Q. So you can't justify that low reading by claiming that the bottle was running out of gas, can you?

A. The reading at that particular point was not my sample point. I have not taken that point into consideration in my calculations or in this entire test, because it had no interest to me whatsoever and I could not explain what was going on there.

Q. Now, Mr. Witness, we have an entrance to this whole machine with a reading of 60, did we not?

A. Approximately, yes. [89]

Q. We have a reading of approximately 22 at the only opening into the bottom of the this back cell, didn't we, between the glass and the back of the box?

A. Yes.

Q. Then why, under your assumption, isn't it correct to decide that 11 was the maximum concentration you ever had in the back here and that your formula should be this air in front correlated to this air and that entrance at the back of this burner?

A. We will be very happy to figure it that way.

Q. All right. If you will, please.

Mr. Hoegh: I better have the question read again. I will take full credit for misunderstanding it.

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

Mr. Lyon: Let him answer what he thinks.

A. Let's see, we tested 11—

Q. 11 was 60. That is 47, is it?

A. Here is what that will do to this calculation.

Q. All right.

A. It is 30 minus 7 over 47 minus 7 is 23 over 40.

Q. Now, where did you get those figures? As I read this thing, you have got 60 parts put in here going up the front into the furnace. Therefore, 47—or 47 parts going into the furnace. We have got a concentration there in the main flue here of everything that didn't go through under the burner, haven't we? Now, under the burner reading was 22 or 9. In other words, there was 9 parts [90] of concentration or whatever you call these figures, going up the back.

A. No, sir, I don't agree to that.

Q. How would you get any more? You measured right here at the only inlet under the burner to that back flue.

A. That sample was taken at the very bottom one half inch in.

Q. No, I beg to differ. We ran it under the burner, put in under here at the time it was made.

A. No, no.

Q. Yes, we did. We placed that pipe clear in and we made it that way. I have got two witnesses here to testify to that.

Mr. Hoegh: We have got two also.

A. Again—

Defendant's Exhibit "V"—(Continued)

(Deposition of Henry Landsberg.)

Mr. Lyon: I believe the record will show. I asked on the record that the tube was pushed in and we requested it pushed in and the reading was made.

A. This tube here?

Q. Yes, or you had another on the end. You stated on the record it was taken underneath the burner.

Mr. Hoegh: You asked him if it was underneath the burner.

Mr. Lyon: And he said yes.

Mr. Hoegh: All right. I will ask you to look at it [91] right now and it sticks in half an inch from the back of the back wall.

Mr. Lyon: Then the witness wants to state that he didn't make the required correction then or test.

Mr. Hoegh: What required test was that?

Mr. Lyon: I asked him to find me out the concentration at the entrance to this back box. He said it could be achieved there.

Mr. Hoegh: You looked at that tubing there and said to take it there.

Mr. Lyon: If that was moved in say six inches could it have varied to any great extent? It is still—the end of the tube now is sticking in approximately an inch, and is still in the draft which comes up the back, isn't it?

A. Again, I have not studied the flow pattern or the openings that exist in this lower portion of the furnace because they did not concern me or the test.

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

Q. Well now—— A. The conditions——

Q. Isn't it a fair assumption that any air that came in here, any SO_2 that came in here, had to come through this opening?

A. Any air that came into where?

Q. Came in the back of this burner between the glass and the back of the burner. [92]

A. Had to come through this opening?

Q. Where that tube is sticking into it.

A. Where the tube is sticking into it, I will not answer to that.

Q. You don't know?

A. I don't know, and also---well, I would say not necessarily so.

Q. Then your gas mixture wasn't homogeneous at any time then?

A. My gas mixture was as homogeneous at the point that I tested as the record of the Titrilog will show.

Q. The whole test rests on the fact that you had a homogeneous mixture of gas, of air and SO_2 , at the time it entered this heater?

Mr. Hoegh: By this heater you mean the secondary heat exchanger?

Mr. Lyon: Q. Any part of it, when it entered the heater.

A. Test number 11 will indicate——

Q. I didn't ask that. I mean, wasn't your entire theory based on having a homogenized mixture?

A. As it entered the furnace?

Defendant's Exhibit "V"—(Continued)

(Deposition of Henry Landsberg.)

Q. At any place in the furnace.

A. I don't care how homogeneous the mixture was as it entered the furnace. I am only interested in the gas being homogeneous at the points that I sampled. [93]

Q. Well, why did you put the paddle wheel in then?

A. To increase the homogeneity of the sample in the back.

Q. Now, Mr. Landsberg, why is not just as true an assumption as your V equals YX to say that the velocity here entering and the one back there are correlated to the one up here on the same type of mathematics that you gave us?

A. I don't believe I understand it.

Q. That all of the SO₂ that went in the upper chamber came up the front of this machine instead of the back of the machine.

A. But I had readings in the back.

Q. Yes, but did you take any readings in the front?

A. I wasn't interested in the readings in the front.

Q. Why not?

Mr. Hoegh: What do you mean as the front?

Mr. Lyon: Q. You mean the gas from here couldn't have got in here?

A. We tested here.

Q. Did you? A. Yes.

Q. You took a little tiny thing and stuck it way

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

down inside here, you didn't take it up here where the gas was going in, did you?

A. If we took it up here we would have a considerably [94] lower reading than taking where we took it. We were trying to be as fair as possible by finding out how much of this got into here, and we got it right on the surface. If you recall, I checked several times when he was testing here to make sure he was holding it right on there.

Q. Outside in the air, though.

A. If he got in it would be less.

Q. You mean there is less inside of this chamber that moves up to there?

A. If it were moving up.

Q. Than there is up at the top?

A. I don't know. The important point was to get as close as possible to this and still remain outside in order to get a sample of the air that is being drawn into this vent.

Q. Then the readings vary by where you take your samples?

A. Any sample will vary by where you take your sample.

Q. And how you take it? k

A. Very true. Your results are no better than your sample.

Q. That's right. And this whole test is based on your arbitrarily taking some samples, is it not?

A. I would say arbitrarily. [95]

Q. Well, these samples could vary from minute

Defendant's Exhibit "V"—(Continued)

(Deposition of Henry Landsberg.)

to minute, didn't they? A. How much?

Q. Well, on one test I believe we have 47 against 42. That is around a 12 per cent variation, isn't it?

A. Right, with a time interval in between.

Q. That's right. And also tests at the various inlets varied, didn't they?

A. Tests of the various inlets?

Q. Yes, with the concentration.

A. What inlets?

Q. Well, we have the main inlet when it is first going into the furnace at point 11, and we had the one in the back here under the burner. You had a big variation of 9 against 47, didn't you?

A. I do not consider that my sample point.

Q. I don't care, but you found that, it was in your machine. We took that reading, didn't we?

A. Yes.

Q. And isn't that a variation of around five times? A. Right.

Q. In other words, a variation of about 500 per cent, 9 against 47.

A. That is a difference between two samples of that much, it is not a variation.

Q. It is a variation at the intake to this machine. [96] And weren't these two readings taken one right after the other? A. Very close.

Q. Very close. Would you say that there was any appreciable variation in the amount of SO₂ that was being administered during those tests?

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

A. No, but I consider that a very poor sample point.

Q. It is the entrance.

A. The one in back.

Q. Why is that a poor sample point?

A. Because it is right in the edge there where there is evidently some poor contact between the air that is going in and the introduction to the instrument.

Mr. Lyon: May I hear that?

(Last answer read.)

Q. How do you know there was? Did you make any tests to determine that there was a flow of air there or not?

A. I know I got a very low concentration right at that point.

Q. Yes.

A. And I know that the concentration going in was considerably higher.

Q. And also——

A. And the input was not varying anywhere near that much, so therefore I did not consider a good point of [97] sampling.

Q. Now, you stated that the calibration of this instrument has been made, didn't you?

A. Not recently.

Q. Where was it made?

A. Where was what made?

Q. The calibration of this instrument made.

A. The Titrilog, you mean?

Defendant's Exhibit "V"—(Continued)

(Deposition of Henry Landsberg.)

Q. Yes.

A. A calibration in all probability has been made in our laboratory. That is either a long time ago or recently, but I was not concerned with that because I am using strictly relative concentrations.

Q. I am merely trying to find out something about the Titrilog now.

A. All right.

Q. How does moving the instrument affect its calibration?

A. Practically none at all.

Q. It has no variation that way?

A. No. The instrument has been generally used after a calibration by taking it all over the field in the rear of an automobile. I have done so personally and brought it back and rechecked the calibration.

Q. Now, does the accuracy vary with the time and movement from the calibration until it is used?

A. The accuracy varies not with movement, probably with time. That is use time, using the instrument, not sitting.

Q. How long had this instrument been used?

A. How long has this instrument been used?

Q. That you used here yesterday, since it was calibrated last?

A. Since it was calibrated last? I don't know. I didn't care.

Q. It hadn't been used enough to vary its accuracy?

A. It hasn't—

Mr. Hoegh: Pardon me. I would like to hurry this along. This was gone into rather thoroughly

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

yesterday and I believe Mr. Landsberg did testify that the calibration of the instrument varied three per cent in any 24-hour period and that since we were not interested in absolute quantities, we were interested in concentrations, the relative concentrations that——

Mr. Lyon: Well, are you testifying, or is Mr. Landsberg testifying?

Mr. Hoegh: I am trying to hurry this along, Mr. Lyon.

Mr. Lyon: I don't think it will help.

A. He is saying essentially what I said the other day, in that the accuracy of the instrument will vary [99] approximately three per cent if calibrated every 24 hours. However, we have paid no attention whatsoever to calibrating it since our entire tests were done in considerably less than a period of 24 hours, and we were interested only in relative concentrations, not actual concentration. If you will ask me what the 57 or the 47 means in concentration, that is grains per hundred cubic feet or parts per million, I could not do so unless I have calibrated the instrument, but since all figures are relative in this particular test, it makes no difference.

Mr. Lyon: Q. Now, my question is, though, not the calibration but the accuracy of it.

A. The accuracy will remain in a 24-hour period plus or minus three per cent.

Q. Thank you.

Defendant's Exhibit "V"—(Continued)

(Deposition of Henry Landsberg.)

A. For a period such as we have tested, probably very, very much less.

Q. Now, have you any idea of the concentration of SO_2 in this machine?

A. I made a rough estimate of an approximate factor which is our calibration.

Q. That is all I want.

A. And I figured that at our introduction when it was around a reading of approximately around 50 would be in the order of seven parts per million.

Q. That is what I wanted. We can state it might [100] vary as far as from five to nine points, though?

A. Somewhere in there, that's right.

Q. Somewhere extremely tenuous concentration?

A. That's right, and if you will note the manner of introduction——

Mr. Hoegh: I object to the word tenuous. It is indefinite.

Mr. Lyon. Q. I will ask the witness, wasn't it rather tenuous——

Mr. Hoegh: He said what it was.

Mr. Lyon: (Continuing) ——concentration? Isn't that concentration at that level?

A. Just what do you mean by tenuous?

Q. All right. Wasn't it a very extremely diluted concentration?

A. It was an extremely diluted concentration, but relative to what the instrument is sensitive to, it was fairly high.

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

Q. I am not questioning the machine itself at all. The machine can't read those things. It is a question I am trying to determine here actually, what ranges we were working in.

A. All right. Roughly in that order.

Q. If the air velocity through the heater were doubled, would it have any change in the Titrilog readings?

A. It would to the extent that we had a constant [101] input of SO_2 into the atmosphere of the tunnel in front of the furnace, and if the furnace were drawing more air then the exchange of air in the tunnel would be more rapid, and therefore the same amount of SO_2 would be introduced into a larger volume of air and therefore your concentrations might be somewhat lower. However, with the excess volume that we have in front of the furnace over that which it draws, I doubt if it would be too much within certain limits.

Q. In other words, a high concentration, the way you administered it, would mean that you had a low velocity of air through the furnace?

A. With regards to what?

Q. A high concentration would mean that you had a low velocity compared with a low concentration where you have a high velocity?

A. If I may inject the same amount of sulphur dioxide from the bottle.

Mr. Hoegh: You are referring specifically to the input into it?

Defendant's Exhibit "V"—(Continued)

(Deposition of Henry Landsberg.)

Mr. Lyon: Pardon, counsel. It is my question.

Mr. Hoegh: I believe that we accorded you considerable leeway in questioning the witness.

Mr. Lyon: This is cross examination, sir.

Mr. Hoegh: During direct and we would like to have the same courtesy extended at this time.

Mr. Lyon: Q. When you have a low velocity you will get a high concentration?

A. A low velocity where?

Q. Any place that this gas is moving.

A. If I have SO₂ coming out of a bottle at a constant rate into air that is moving by it, then the faster the air moves by it the lower the concentration.

Q. That's right.

A. The slower the air moves by the higher the concentration.

Q. All right. Mr. Landsberg, yesterday we made a reading at the top of the stack, didn't we?

A. You mean clear up at the top there?

Q. Yes. A. Yes.

Q. And what was that reading?

A. 3, or a total of 16.

Q. Now, wasn't this burner ported directly out that flue? A. What?

Q. The burner of the furnace, the exhaust gases ported out that flue?

A. You mean the air from—

Q. Well, the exhaust gases from the burner itself.

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

A. Yes, probably. I don't know what the exact hook-up is there, but that is straight through to the [103] furnace. I mean, I presume it is, yes.

Q. And the only source of air in there is from the box, is it not? A. Yes.

Q. Now, you were using this natural gas that had mercaptans added to it, were you not?

A. They have some mercaptans in it, naturally.

Q. When these mercaptans burn, they turn to SO_2 , do they not? A. Right.

Q. And you had the SO_2 loaded air entering the bottom of that flue, did you not? A. Yes.

Q. And you had the addition of the additional SO_2 by the burner?

A. Very small amount. By the burning of the gas, you mean?

Q. Yes. A. Yes.

Q. Then how do you explain the fact that the outlet, flue outlet was only three above and yet all the air that went in there started at 60 or better, or 47 or better and had initially SO_2 added to it?

A. You have a large volume of gas being burned there and the amount of sulphur that is in the gas itself is considerably lower than that which we are adding at the [104] bottom, so you have a large dilution taking place.

Q. A dilution from what?

A. From the gas itself.

Q. Doesn't that gas burn into water, carbon dioxide? A. That is gas.

Defendant's Exhibit "V"—(Continued)

(Deposition of Henry Landsberg.)

Q. What was the rate of admission of natural gas?

A. I think it figures around 30 cubic feet per hour.

Q. In other words, about a half a cubic foot a minute?

A. Yes.

Q. And how much air would be required to burn that gas?

A. Oh, I would have to compute that out.

Q. Well, will you do it? Isn't it about eleven times as much air as gas?

A. On a theoretical basis it is only twice—wait a minute. No, wait a minute. That's right, yes, roughly.

Q. Then your dilution could have been not more than one in eleven and probably less because you are adding some SO_2 from the gas?

A. Yes.

Q. Then how can you figure that you got a 16 times lower reading at the top of the flue than at the entrance to the machine?

A. Again, when there are certain tests in this [105] experiment that I was interested in, so I took them my way. Other tests you asked for and I took them your way, such as the bottom of the furnace and the top of there. If I got a low reading like that and it didn't jibe, then I would start probing around all over the furnace. You asked me to hook it there and take a sample. You did not say where or for what.

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

Q. I said I wanted a sample of the flue. Now, how did the tests I made differ from any of those you made?

A. The tests that I made, I decided where I wanted to sample and I figured out where would be a good point of sampling. The tests that you made, I sampled simply where you wanted.

Q. To get the answer you wanted, though, that is the reason you took them, though, wasn't it?

A. No, sir. I don't—

Q. I took a test at a point the same as you took it, with the same instrument and everything else.

A. You asked us to take a sample. We stuck a tube there and took a sample. I didn't know what significance the sample would have to what you are going to talk about. Therefore, I didn't care.

Mr. Lyon: I don't think we have any more from this witness.

Mr. Hoegh: Well, I would like to take the measurements on the back of this heater and I have just a few [106] questions. Perhaps we can get this thing wound up before recessing for lunch.

Mr. Lyon: What questions are those?

Mr. Hoegh: I want to ask him to take the measurements on the back of this heater and I want to straighten out a couple of things.

Mr. Lyon: How long do you think you will be?

Mr. Hoegh: Not over ten minutes.

Mr. Lyon: All right. I guess we can wait ten minutes and finish.

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

Mr. Hoegh: I don't think we need the back off this if you are satisfied.

Mr. Lyon: Oh, yes, there is one thing I want to know about this one, how you mounted the Economizer on top here, did you put a spacer or anything in there?

Mr. Hoegh: I think you can see that the female extension of the flue, and the Economizer rests down on the top of the upper box, but we can see that.

Mr. Lyon: Mr. Kice, will you examine this and see if that is mounted the way it should be?

Mr. Kice: I can't see with the glass on there.

Mr. Lyon: Could we have the glass taken off?

Mr. Hoegh: Yes.

Mr. Lyon: Can you see it now?

Mr. Kice: Yes. That makes it much better.

Mr. Hoegh: Would you like us to slip the lower back [107] out?

Mr. Lyon: Oh, have you anything while he is taking a look at that? Do you want to introduce these exhibits?

Mr. Hoegh: I want to take measurements of the spacing between the studs.

Redirect Examination

Q. (By Mr. Hoegh): What is the measurement of the spacing between the studs?

A. 14-7/16ths.

Q. Also take it at the bottom.

A. The same, 14-7/16ths.

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

Q. Would you likewise measure—let's take it from the bottom of the header plate down to—well, let's take the top down to the level on which the lower back is resting.

A. 56-1/16th plus 2; 58-1/16th.

Mr. Hoegh: Mr. Lyon—

Mr. Lyon: Yes.

Mr. Hoegh: I believe earlier you asked the witness concerning this flange which sticks up. I would like to ask the witness what actually does position the position of the lower back in view of the fact that the header plate is nailed to the wall.

A. I would say the meeting of the male and the female [108] portion of the—what would you call that—flue?

Q. Yes.

A. Would position the lower furnace.

Q. I would like to have the witness read in the results of his calculations on all of these based upon the method of calculation which he developed this morning.

A. I have computed that the amount of air moving by the back furnace, that is, entering into the upper exchanger is $57\frac{1}{2}$ per cent of the total coming out the vent. That is on the furnace with the four foot stack.

Q. Yes. It is in accordance with the formula developed this morning that we went through earlier. Off the record.

(Discussion held off record.)

Defendant's Exhibit "V"—(Continued)

(Deposition of Henry Landsberg.)

Mr. Lyon: This last one was the four foot?

A. Four foot.

Mr. Lyon: The last answer you gave?

A. Yes.

Mr. Lyon: That is plus or minus what accuracy?

A. Plus or minus roughly ten per cent of the per cent.

Mr. Lyon: In other words, that answer was what? A. 57.

Mr. Hoegh: Call it 57 plus or minus 6 per cent.

Mr. Lyon: It could be from 51 up to 62, somewhere in that range? A. Right. [109]

Mr. Lyon: Let him get through with direct examination.

A. You want me to answer for this?

Mr. Hoegh: Q. I believe you gave that one earlier this morning. The figure was 24 per cent?

A. Right.

Mr. Hoegh: No further questions.

Mr. Lyon: No further questions? I would like to have, if you are going to use those photographs, let's have them identify them, mark them as exhibits.

Mr. Hoegh: Q. Exhibit 2, I would like to show you, Mr. Landsberg, and ask you what does that depict?

A. That is the sulphur dioxide introductory system which introduced the sulphur dioxide into the air in the tunnel. Describe it?

Mr. Lyon: No, that is all right.

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

Mr. Hoegh: Q. Does that represent the manner in which sulphur dioxide was introduced in the tests which were conducted here?

A. Yes, minus one panel.

Q. Yes. I believe that was explained in the earlier portions of the testimony.

Would you mark this photograph which I now hand you as Exhibit 6?

(Whereupon the photograph referred to was marked as Plaintiff's Exhibit 6 by the Notary Public.) [110]

[See Exhibit 29D in the Book of Exhibits.]

Mr. Hoegh: Q. I ask you now, Mr. Witness, I hand you that Plaintiff's Exhibit 6, what does that depict?

A. The back of the furnace as showing the gas introductory, the heating gas introductory line.

Q. The furnace nearest that, could you identify that, please?

Mr. Lyon: Which furnace is this a photograph of?

A. That is the three foot heat exchanger.

Mr. Hoegh: Q. And the far one with the tunnel attached to it is which furnace?

A. The one with the four foot heat exchanger.

Mr. Lyon: Which one?

Mr. Hoegh: The far one with the tunnel attached right here.

Mr. Lyon: Oh.

Mr. Hoegh: Q. Does that depict the test setup

Defendant's Exhibit "V"—(Continued)

(Deposition of Henry Landsberg.)

on the heaters, the fact of the heaters as they were conducted or the tests were conducted on them here?

A. Right.

Q. I would like to point out the numbers 1, 2, 3 and 4 which appear on the closest heater and also the numbers 1, 2, 3 and 4 which appear on the farthest heater in Plaintiff's Exhibit 6, and ask if those are test points which were used for these tests to which we have referred?

A. They were.

Mr. Hoegh: Would you mark this photograph as [111] Exhibit 7, please?

(Whereupon the photograph referred to was marked as Plaintiff's Exhibit 7 by the Notary Public.)

[See Exhibit 29 in the Book of Exhibits.]

Mr. Hoegh: Q. I show you now, Mr. Landsberg, Plaintiff's Exhibit 7 and ask you what that depicts?

A. That is the furnace with the—the test furnace with the four foot heat exchanger and the tunnel, test tunnel in front of it.

Q. Does that represent the test setup as it was actually conducted here? A. Yes.

Mr. Hoegh: I hand you this photograph, Mr. Reporter, and I would like to introduce this as Plaintiff's Exhibit 8.

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

(Whereupon the photograph referred to was marked as Plaintiff's Exhibit 8 by the Notary Public.)

Mr. Hoegh: Q. I show you now, Mr. Landsberg, a photograph marked as Plaintiff's Exhibit 8 and ask you what that depicts?

A. That is the furnace, test furnace with the three foot heat exchanger without the test tunnel.

Q. Does that show the three foot—or you said the furnace with the three foot secondary heat exchanger that was actually tested, upon which tests were run here? A. Yes.

Q. I would like to call your attention to the heater in the left-hand side of the photograph and ask you what [112] that shows?

A. That shows the test heater with the four foot heat exchanger with the test tunnel attached.

Mr. Hoegh: Off the record.

(Discussion held off record.)

Mr. Hoegh: Would you mark this as Plaintiff's Exhibit 9?

(Whereupon the photograph referred to was marked as Plaintiff's Exhibit 9 by the Notary Public.)

[See Exhibit 29C in the Book of Exhibits.]

Mr. Hoegh: Q. Mr. Landsberg, I show you a photograph which has been marked Plaintiff's Exhibit 9 and ask you what that depicts?

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

A. That is the top portion of a test furnace, the one with the three foot heat exchanger.

Q. Does that show the test points 5A, 5B and 5C that were used in these tests?

A. They do.

Q. And points 7 and 8? A. They do.

Q. Were the same points used on the heater with the four foot heat exchanger?

A. Right.

Q. By that I mean the location of the points were the same on the heaters?

A. They were the same.

Mr. Hoegh: Off the record. [113]

(Discussion held off record.)

Mr. Lyon: Defendant's counsel will agree to be responsible and take possession of Exhibits 1, 3, 4, and 5, and we will give them to counsel for plaintiff upon request.

Mr. Hoegh: That is perfectly agreeable with me. Off the record.

(Discussion held off record.)

Mr. Hoegh: It has been stipulated that Plaintiff's Exhibits 2, 6, 7, 8, and 9 have been sufficiently identified.

Mr. Lyon: Yes.

Mr. Hoegh: Do you want any of this stuff kept intact, the heaters?

Mr. Lyon: I don't want any of it.

Mr. Hoegh: We are going to have it here.

Mr. Lyon: Is that all?

Defendant's Exhibit "V"—(Continued)
(Deposition of Henry Landsberg.)

Mr. Hoegh: Yes.

Mr. Lyon: I want to give you notice of two more patents as prior art. I am giving you notice of a patent to Snyder, 2093492 of September 21, 1937.

Mr. Hoegh: With a number like that?

Mr. Lyon: Yes. And patent to Bason and McGarrigal, 786713 of April 4th, 1905. That is prior art which the defendants will rely upon at the trial.

Mr. Hoegh: It is stipulated that this deposition [114] may be signed before any notary?

Mr. Lyon: Certainly. Could we remove this a minute?

Mr. Hoegh: Certainly.

Mr. Lyon: We will now call the deposition for which we received notice closed?

Mr. Hoegh: Yes.

/s/ HENRY LANDSBERG,
Witness. [115]

State of California,
County of Los Angeles—ss.

I, Lenore Tafoya, Notary Public in and for the County of Los Angeles, State of California, do hereby certify:

That on the 7th day of January, 1955, before me personally appeared Henry Landsberg, the witness whose deposition appears hereinbefore.

That the said witness was by me duly advised of the right to make such changes and corrections in

Defendant's Exhibit "V"—(Continued)

(Deposition of Henry Landsberg.)

the within transcript as might be necessary in order to render the same true and correct;

That the said witness stated to me that the said deposition had been read to or by him, and he, having made such changes and corrections as he desired thereupon, subscribed and swore to the said deposition in my presence;

In Witness Whereof, I have hereunto subscribed my name and affixed my seal of office the date hereinabove written.

[Seal] /s/ LENORE TAFOYA,
Notary Public in and for the County of Los Angeles, State of California.

[Endorsed]: Filed January 11, 1955.

DEFENDANT'S EXHIBIT "Y"

MINUTES OF NEW PRODUCTS COMMITTEE
MEETING

Thursday, August 14, 1952, 2:30 p.m., Sales Conference Room

* * * * *

Economizer for Gas Wall Heaters

Dean Olds explained the situation in which we have been involved with AGA on approval of our new line of gas wall heaters and the extended header and economizer. He mentioned that our Models 65 and 66 have been approved for use with our extended header; however, we have not been able as yet to receive approval for using metalbestos for venting these heaters.

Dean then advised the group that he had just received word from AGA that our economizer for use with the Models 67, 68, 69 and 64 had been disapproved by AGA. This is the second unit which we have submitted in an effort to cooperate with AGA in designing an economizer to overcome some of the difficulties which they feel were involved in our original design. He mentioned he had recently received the patent information on the Holly unit similar to our economizer and after a careful review he was of the opinion our present economizer would infringe on their patent.

It was the recommendation of the design department that we develop an economizer with two registers which they felt may have a chance to pass AGA and in their opinion would not infringe on Holly's

patent. Naturally, design could not definitely say such an economizer would meet AGA requirements, but they did feel it would overcome the main objection which they raised with regard to our present economizer which was the fire hazard. Harry Giewosky then illustrated on the blackboard how our blower would work in conjunction with the two-register economizer. He mentioned this would necessitate no changes in the design of the blower and it would work very effectively with this arrangement.

After further discussion it was agreed we would proceed with the manufacture of the Models 65 and 66 with 65-310 Extended Header. There were some recommendations that it may be advisable to proceed with the manufacture of our current line until we could resolve all of the AGA problems in which we are now involved. However, upon checking our raw material inventory it was determined we will have material available for the production of our new line of heaters, but this material is not of the proper gauge and size to be transferred to our old line of wall heaters. Therefore, it was quite obvious that if we pursued this course of action we would lose considerable wall heater business because products would just not be available. If on the other hand we decide to proceed with the new line and cannot resolve the economizer problem, we run the risk of being out of 35,000 BTU Input models.

After careful consideration the group felt it advisable to proceed with the production of Models 65 and 66 which use the 65-310 Extended Header and then move right into the manufacture of

Models 67 and 68 which are the 35,000 BTU input models and require the economizer. In a few weeks we should be able to determine whether our economizer with two registers will be approved by AGA. If it should be approved we will have 35,000 BTU input units available for shipment. In the event the worst might happen and we cannot resolve the economizer problem, we can still sell the Models 67 and 68 for use with the 65-310 Extended Header as 25,000 BTU input models.

* * * * *

[Endorsed]: No. 14711. United States Court of Appeals for the Ninth Circuit. The Coleman Company, Inc., a corporation, Appellant, vs. Holly Manufacturing Company, a corporation, Appellee. Transcript of Record. Appeal from the United States District Court for the Southern District of California, Central Division.

Filed: April 2, 1955.

/s/ PAUL P. O'BRIEN,
Clerk of the United States Court of Appeals for
the Ninth Circuit.

In the United States Court of Appeals
for the Ninth Circuit

No. 14711

THE COLEMAN COMPANY, INC., a corporation
of Kansas, Appellant,

vs.

HOLLY MANUFACTURING COMPANY, a cor-
poration of California, Appellee.

NOTICE OF ADOPTION OF STATEMENT
OF POINTS

Appellant hereby adopts as its statement of points under Rule 19(6) on its appeal the concise statement of points on appeal under Rule 75(a) appearing in the transcript of the record certified by the Clerk of the District Court and filed herein.

Dated this 7th day of April, 1955.

LYON & LYON,

/s/ By FREDERICK W. LYON,

Attorneys for Defendant-Appellant

Affidavit of Service by Mail attached.

[Endorsed]: Filed Apr. 8, 1955. Paul P. O'Brien,
Clerk.

No. 14711.

IN THE

United States Court of Appeals

FOR THE NINTH CIRCUIT

THE COLEMAN COMPANY, INC., a corporation,

Appellant,

vs.

HOLLY MANUFACTURING COMPANY, a corporation,

Appellee.

DEFENDANT-APPELLANT'S REPLY BRIEF.

FILED

SEP 10 1955

LYON & LYON,

811 West Seventh Street,
Los Angeles 17, California,

Attorneys for Defendant and Appellant.

PAUL P. O'BRIEN, CLERK

TOPICAL INDEX

	PAGE
The judgment of the District Court is not supported by the findings of fact.....	2
The patent in suit does not teach anything new that solved the problems of the art.....	3
Commercial success	5
Exhibit Y is not an admission of infringement.....	6
There was no proof of an invention.....	7
Conclusion	9

TABLE OF AUTHORITIES CITED

CASES	PAGE
Farmers Cooperative Exchange v. Turnbow, 111 F. 2d 728.....	5
Hycon Manufacturing Company v. H. Koch & Sons, 219 F. 2d 356	3
Kemart Corp. v. Printing Arts Research Laboratories, 201 F. 2d 624	9
Kugelman v. Sketchley, 133 F. 2d 426.....	6
McRoskey v. Braun Mattress Co., 107 F. 2d 143.....	9
Schick Service v. Jones, 173 F. 2d 969.....	6
United States v. Esnault-Pelterie, 303 U. S. 26.....	2
Wire Tie Mach. Co. v. Pacific Box Corporation, 102 F. 2d 552	2, 3

STATUTE

United States Code, Title 35, Sec. 112	4, 5
--	------

No. 14711.

IN THE

United States Court of Appeals

FOR THE NINTH CIRCUIT

THE COLEMAN COMPANY, INC., a corporation,

Appellant,

vs.

HOLLY MANUFACTURING COMPANY, a corporation,

Appellee.

DEFENDANT-APPELLANT'S REPLY BRIEF.

The brief for Plaintiff-Appellee does not take issue with any substantial factual matters presented in the statement of the case in the opening brief for Defendant-Appellant. It does, however, add certain new issues to the facts as set forth in Appellee's Opening Brief. These facts are:

1. That Appellant is asking for a trial *de novo* and asking this court to pass on the credibility of witnesses;
2. That prior to the alleged invention of Hollingsworth, *et al.*, there was poor efficiency and hot wall problems in the gas heater industry that were solved by the patent in suit;
3. That the alleged invention of the patent in suit enjoyed immediate and marked commercial success;

4. That defendants engineers admitted that the patent in suit was infringed by defendants accused devices, and;
5. That defendants counsel admitted at the trial that there was infringement of the patent in suit.

The Judgment of the District Court Is Not Supported by the Findings of Fact.

The judgment of the District Court has no foundation. This judgment was made on entirely insufficient findings of fact. These findings merely set forth the problems to be solved, that the patent is valid and that it is infringed [Findings of Fact, 9-19, R. 21-24].

As this court and the United States Supreme Court have said, to determine the validity of a patent the court must decide what was patented and how that patented structure differed from the prior art. This the District Court failed to do.

The only evidence submitted by Plaintiff-Appellee upon this issue was the patent in suit [Ex. 1]. The only evidence submitted as to the prior art was the admissions of the patentee, Hollingsworth, and the prior art patents [Ex. C, I, & R]. There was no dispute of facts and the "truth or falsity of the testimony" was not before the District Court. (*Wire Tie Mach. Co. v. Pacific Box Corporation*, 102 F. 2d at 552 and *United States v. Esnault-Pelterie*, 303 U. S. 26 at 38.)

Appellee's brief does not assert in any way what comprises the invention of the patent in suit. It merely states that something allegedly discovered by the Patentees overcame certain deficiencies in prior wall heaters. (App. Br. pp. 3-6.) As there are no findings or indicia of what the

District Court determined the invention was or how it differed from the prior art there is no basis for the judgment.

This court to decide the issues raised by this appeal has received no guide upon which to determine the correctness or error of the District Court's Judgment and should review the undisputed evidence to determine what is the invention, if any, how that invention differs from the prior art and whether or not that invention was incorporated in Defendant's heaters. (*Hycon Manufacturing Company v. H. Koch & Sons*, 219 F. 2d 356; *Wire Tie Mach. Co. v. Pacific Box Corporation*, *supra*.)

The Patent in Suit Does Not Teach Anything New That Solved the Problems of the Art.

Appellee's brief (pp. 3-7) dwells for more than four pages on the problems confronting the gas wall heater industry. With the facts set forth therein the Appellant does not quarrel. It is a fact that in all wall heaters the problems of thermal efficiency and excessive wall temperature are present. However, the Court's attention is called to the fact that nowhere in Appellee's brief does he set forth how that problem was solved by the patent in suit. Appellee merely states that it was solved. Nowhere in Appellee's brief does he set forth what was new in the patent in suit that solved this problem. These two problems were and always are present in all types of heaters. They are solved for each heater by different methods. Some heaters by confining the input or size of the fire and others by using jackets around the flues carrying off the gases of combustion to save some of the heat from these gases and to reduce wall temperatures [Ex. C, I & R]. A discussion of these prior art patents is given on

pages 8, 28, 29, 40 and 41 of Appellant's Opening Brief. It is not believed necessary to repeat a description of what is shown in these patents and how these patents achieved efficiency of wall cooling.

The only hint given by Appellee as to what was new in the patent in suit was the testimony of the inventor Hollingsworth concerning the difference in sizes between the upper and lower radiators to raise the efficiency and lower the wall temperatures [R. 122-134]. The patent in suit describes that this difference is "chosen so that as a conduit it will just handle the maximum products of combustion to be conducted in the first radiator with scarcely any dilution through the draft hood." [Col. 4, lines 22-25.] The claims of the patent in suit in describing this part of the patented heater say "the horizontal cross section of the second radiator being substantially smaller than that of the first radiator" (Claim 1).

For a patent to be valid the law requires an inventor to particularly point out and distinctly claim his invention (35 U. S. C. 112). This is not done by saying that the second radiator must be smaller than the first. This is evident when it is noticed that the inventor admits that prior Coleman heaters had flues or radiators in which the upper or second was smaller than the lower or first. The lower radiator had a cross-sectional area of 17.83 square inches (B. 97); the flue or second radiator a cross-sectional area of 13.1 square inches [R. 489]. It should be remembered that in all ways the lower heater in Defendant's alleged infringing devices was the same as the prior Defendant's heater Model 60 [R. 159-160; 321-323]. This Model 60 of Coleman then meets all the requirements of Claim 1, as to difference in size. It had a large first radiator, 17.83 square inches. It had a

smaller second radiator, 13.1 square inches. Claim 1. does not point out any difference between this prior heater and the purported invention.

Appellee contends that a patent is sufficiently definite if a person can construct and operate the device described therein. *This is not the test for definiteness.* The test is, does it point out a difference from prior devices? How can any court say that a device infringes a patent when the claims say "smaller" and the prior art had the second radiator smaller than the first. The inventor has not complied with the law and particularly pointed out and distinctly claimed his invention (35 U. S. C. 112). See also: *Farmers Cooperative Exchange v. Turnbow*, 111 F. 2d 728.

Commercial Success.

Plaintiff-Appellee's only test of invention and the only test used by the lower court was whether or not the heater constructed by the Appellee enjoyed immediate and marked commercial success. The District Court found that the heater had enjoyed such commercial success [Find. of Fact 32, R. 27]. Commercial success is not proof of invention. Only when there is doubt as to whether the alleged novelty is that which could be accomplished by a skilled craftsman or required true invention, is commercial success any test. There was nothing new in using an economizer or secondary heater exchange above a primary heater (App. Op. Br. pp. 26-30). The combination of a primary heater and a secondary heater was old. There is no place in this case for the doctrine of commercial success.

. . . "Where, as here, however, invention is plainly lacking, commercial success cannot fill the void. . . .

Commercial success is really a makeweight where the patentability question is close . . . (*Jungersen v. Ostby and Barton Co.*, 335 U. S. 560 at 567)."

Where a lack of invention has been shown, commercial success has no significance. (*Kugelman v. Sketchley*, 133 F. 2d 426 at 428.)

In the present case the Plaintiff has not pointed out to this court what was the invention that was patented. The District Court made no finding of fact as to what this invention comprised. The fact that the commercial heater manufactured by the Patentee had commercial success is not a proof of any invention nor of what that invention comprised.

. . . "Nor is the fact that there is widespread use of the elements of the patented device as combined therein conclusive of its patentable novelty—it may be merely evidence of utility." (*Schick Service v. Jones*, 173 F. 2d 969 at 974.)

Exhibit Y Is Not an Admission of Infringement.

Appellee's charge that Defendant's Chief Engineer admitted infringement of the patent in suit (Br. for Pltf.-App. p. 46). Exhibit 4 [R. 734] has nothing to do with the heaters held to infringe by the District Court. This exhibit refers to an experimental model which was never sold by Defendant [R. 332-333]. It is not disputed that Exhibit 4 was made by Defendant's Engineer. He was not referring to the heaters charged to infringe. He was describing an experimental model made by Coleman to test the patent in suit. Exhibit Y shows that this heater could not be made to work satisfactorily. It states that Defendant could not get A. G. A. approval of the heater and that

a new device would be necessary. The undisputed testimony is that this was an unsuccessful experimental heater that was never manufactured or sold.

. . . "Exhibit Y indicates that we had been unsuccessful in the experiments with the device that was similar to Holly in that it brought air into a space around the lower box at the floor, and simply allowed that air to feed up to the—through the stud space to the ventilated flue stack, and then directly into the room.

"In fact, we had the cooperation of the American Gas Association at Cleveland in an attempt to make that work in that their testing of it was not successful in our adaption of that old scheme. So we would like to— Q. (By Mr. Lyon): Mr. Kice, you failed to pass the A. G. A. test with that type of heater? A. That is right. And after we found that it was not successful, we were—we decided that there were some fundamental faults with that type of thing, anyhow, and we did not carry on, for a long period of time, attempting to make that one operate, but went to a design that would not be dependent on maintaining an unrestricted flow of unrestricted channel in the stud spaces." [R. 332-333.]

There Was No Proof of an Invention.

At the trial and in their brief Appellees ignore the legal tests of infringement. These tests are

1. What is new in the patent in suit,
2. How that new device operates, and;
3. Does the accused device incorporate the new device and operate in the same way.

To prove infringement, Appellee chose to merely read the claims of the patent in suit and apply these words to

Defendant's structure. . . . The District Court held that there was infringement because the claims read upon Defendant's heaters [Finding of Fact 28, R. 26]. A claim must not only read upon Defendant's structure but the mode of operation must be similar. Appellee in no way met this test. In fact Appellee offered no evidence that Defendant's heaters operated the same as the patent in suit.

The undisputed evidence is that Defendant-Appellant's heaters operate as efficiently whether or not the air from around the lower heater enters the economizer as if it does not [R. 344, 398, 960]. This is not disputed and is uncontrovertible evidence. The evidence is also undisputed and uncontrovertible that the heater manufactured in accordance with the patent in suit cannot be operated with the air blocked off that enters economizer from around the lower heater [Ex. U, R. 947]. In Appellee's installation instructions it is specifically set forth that this passage must not be blocked [R. 947]. This is undisputable proof that the heaters of Appellant-Appellee have a different mode of operation. One achieves its efficiency and wall cooling from air admitted directly from the room (Appellants) and the other from air coming up around the lower heater (Appellee's Patented Heater).

Even though the claims of the patent in suit read upon Appellant's heaters the substance and meaning of the claims is not incorporated in Defendant-Appellants heaters. Nothing but accidental useless leakage enters from around the lower heater. There is no infringement even though Appellant admitted that its heaters had all of the physical structure of the patent in suit because the operation of the two devices is entirely different. The patent in suit has certain openings for the passage of air and de-

scribes and claims the method of increasing efficiency and cooling the wall by passing air through these openings. Appellant's structure does not rely upon the same openings for the air that increases the efficiency of the Appellant's device and cools the wall. These openings that correspond to the openings of the patent in suit are only accidental Manufacturing tolerances [R. 308]. These openings are similar to manufacturing tolerances in Appellee's structures [R. 454]. "Infringement is not proved merely by reading a claim upon an accused device." (*McRoskey v. Braun Mattress Co.*, 107 F. 2d 143 at 147.)

The test of infringement is "if they work in substantially the same way to accomplish the same results." *Kemart Corp. v. Printing Arts Research Laboratories*, 201 F. 2d 624 at 629. Appellant's heaters do not work the same way as that of the patent in suit but work because of the air admitted directly from the room.

Conclusion.

Appellants have demonstrated to this court that the judgment of the District Court is entirely unsupported by the findings. The District Court did not find what was the invention of the patent in suit. It did not find that invention differed from the prior art. It did not find that this invention was incorporated in Defendant's heaters for the same purpose and to operate in the same manner to accomplish the same result. The Judgment of the District Court being unsupported by the findings it should be reversed.

Respectfully submitted,

LYON & LYON,

By FREDERICK W. LYON,

Attorneys for Defendant and Appellant.



No. 14,711.

IN THE

United States Court of Appeals

FOR THE NINTH CIRCUIT

THE COLEMAN COMPANY, INC., a corporation,
Defendant-Appellant,

vs.

HOLLY MANUFACTURING COMPANY, a corporation,
Plaintiff-Appellee.

Appellee's Brief in Opposition to Appellant's Motion
to Remand for Further Trial and to Appellant's
Petition for Rehearing.

FILED

JAMES B. CHRISTIE,

RICHARD B. HOEGH,

595 East Colorado Street,
Pasadena 1, California,

Attorneys for Plaintiff-Appellee.

MAY 19 1956

PAUL P. O'BRIEN, CLERK



TOPICAL INDEX

PAGE

The law and facts show no basis for appellant's motion to re-
mand for further trial. The motion should be denied.....

I.

Appellant has not shown and cannot show requisite diligence
and, for this reason alone, is not entitled to a new trial.....

II.

The British patent is not of that substantial character which
seems, prima facie, to seriously threaten the validity of the
patent in suit.....

III.

Summary 17

Appellant's petition for rehearing reargues matters previously
decided. The petition should be denied..... 12

I.

The structures in suit are integrated units..... 12

II.

Holly's patent meets the requirements of the A & P case..... 14

TABLE OF AUTHORITIES CITED

CASES	PAGE
A & P decision, 340 U. S. 147.....	15
Alma Motor Co. v. United States, 134 Fed. Supp. 641.....	8
Hicks v. Otto et al., 85 Fed. 728.....	4, 5
Lockwood v. Cleveland, 20 Fed. 164.....	4
Motor Improvements, Inc. et al. v. General Motors Corp. et al., 105 F. 2d 893.....	6, 10
Rome Grader & Mfg. Corp. v. J. D. Adams Mfg. Co., 135 F. 2d 617	3
Steiner Sales Co. v. Schwartz Sales Co., 98 F. 2d 999, cert. den. 305 U. S. 662.....	8
Switzer et al. v. Marzall, 96 Fed. Supp. 332.....	8
Toledo Co. v. Computing Co., 261 U. S. 399.....	2
Westinghouse Electric and Manufacturing Co. v. Wadsworth Electric Manufacturing Co., 36 F. 2d 319.....	8

No. 14,711.

IN THE

United States Court of Appeals

FOR THE NINTH CIRCUIT

THE COLEMAN COMPANY, INC., a corporation,
Defendant-Appellant,

vs.

HOLLY MANUFACTURING COMPANY, a corporation,
Plaintiff-Appellee.

**Appellee's Brief in Opposition to Appellant's Motion
to Remand for Further Trial and to Appellant's
Petition for Rehearing.**

**THE LAW AND FACTS SHOW NO BASIS FOR
APPELLANT'S MOTION TO REMAND FOR FUR-
THER TRIAL. THE MOTION SHOULD BE
DENIED.**

In discussing a case in which the Circuit Court for the Seventh Circuit had refused to permit a new trial for consideration of newly discovered evidence, Mr. Chief Justice Taft said:

"We can not know what the result of the hearing would have been on this issue if tried, because only one side is presented. We are prevented from knowing it by a most salutary rule of law which, after parties have had a full and fair opportunity to prepare their case, refuses to permit them to drag out litigation by bringing in new evidence which with

due diligence they ought to have discovered before the hearing. The apparent hardship of particular cases should not be and cannot weigh against the application of this sound principle. As Mr. Justice Story remarked in *Ocean Insurance Co. v. Fields*, 2 Story, 59; 18 Fed. Cas. 532, 'It is for the public interest and policy to make an end to litigation, or as was pointedly said by a great jurist, that suits may not be immortal while men are mortal.' " (*Toledo Co. v. Computing Co.*, 261 U. S. 399, 425 (1923).)

Notwithstanding this "salutary rule" appellant, The Coleman Company, now seeks further trial before the District Court on the ground of "newly discovered evidence," consisting of British Patent No. 502,945 granted to Darby, March 28, 1939. According to appellant's motion (p. 2) the patent was discovered ". . . subsequent to the decision rendered herein on April 10, 1956. . . ." A copy of the patent was submitted to this Court with an affidavit of Frederick W. Lyon dated April 27, 1956. According to Mr. Lyon it was discovered "accidentally" by one of his associates "in conducting a search in the United States Patent Office records for other purposes in no way connected with this litigation." [Affidavit, p. 2.] Mr. Lyon also says that "at least three (3) exhaustive searches were made prior to the trial in the United States District Court to turn up pertinent prior art and that none of these said three (3) searches found the aforesaid British Patent No. 502,945; That these searches were diligently made and believed at the time to be exhaustive; That The Coleman Company, Inc., Appellant, through its officers or employees, had no knowledge of the aforesaid British Patent prior to April 12, 1956," and that "no other member of the firm of Lyon

& Lyon, of which Affiant is a member, or other attorneys connected with the firm of Lyon & Lyon, had any knowledge of the aforesaid British Patent prior to the above set forth facts.”

“To secure a rehearing on newly discovered evidence, two questions must be answered affirmatively.

. . .

(1) Has plaintiff exercised due diligence *at all times* in its efforts to secure the newly discovered evidence?

(2) Will such evidence be of such weight or importance as to necessitate a different conclusion?” (*Rome Grader & Mfg. Corp. v. J. D. Adams Mfg. Co.*, 135 F. 2d 617, 621 (7th Cir., 1943).) (Italics added.)

In the case at bar neither of these questions can be answered in the affirmative.

I.

Appellant Has Not Shown and Cannot Show Requisite Diligence and, for This Reason Alone, Is Not Entitled to a New Trial.

There is nothing in the affidavit to show that the “newly discovered evidence” could not have been found prior to the trial. On the contrary, the affidavit contains affirmative evidence that this is not the case. The British patent was found “in the United States Patent Office records.” It had been there for many years, for the United States Patent Office maintains a file of all British patents and its records show that this one was received May 23, 1939. It was therefore available.

“Unless it appears affirmatively that the evidence could not have been obtained in due season, if the

party applying had used all reasonable efforts in that behalf, the application will be denied. It is due to the public interest, as well as to the immediate litigants, that rehearings for the purpose of letting in evidence which might and ought to have been introduced before the hearing should not be tolerated. In no class of cases should the practice of allowing rehearings be more strictly guarded than in cases like the present, where the defense of prior use is relied on to defeat the novelty of a patented invention, because it is seldom that a defendant cannot make it appear that he has discovered additional evidence in support of such a defense.” (*Hicks v. Otto et al.*, 85 Fed. 728, 729 (Cir. Ct. S. D. N. Y., 1884).)

It might have been added that it is seldom that a defendant cannot dig up another patent to urge as prior art, particularly when that patent has been accessible all along.

In the case at bar, the British patent upon which appellant predicates its petition for a new trial has been easily accessible since 1939 and could have been discovered. The situation is analogous to that in *Lockwood v. Cleveland*, 20 Fed. 164, 166 (Cir. Ct. D. N. J., 1884), where a new trial was denied and in which it was said:

“He alleges in his petition that the new facts which he wishes to introduce into the proofs are the public use of the invention . . . and that the invention was well known and publicly used in the trade more than 15 years ago. The evidence, therefore, was easily accessible, and the only reason suggested why it was not obtained was the fact that he did not understand its materiality.”

Mr. Lyon alleged that the “searches were diligently made.” Such a self-serving conclusion is entitled to no weight. Similar statements were made in the case of *Hicks v. Otto* from which we have quoted. There the Court said:

“The defendant states in his affidavit, in general terms, that ‘he has been eager to collect all material evidence,’ and ‘has made great exertion, and every reasonable effort, to defend the suit.’ These are his conclusions, but, if the facts were specified, they might not be the conclusions of the court. Such generality of statement is not sufficient. If it could not be conscientiously made in almost every case, it could be, in every case, with facility and with entire safety.” (*Hicks v. Otto et al.*, *supra*, 85 Fed. 728, 729.)

Moreover, Mr. Lyon’s affidavit does not allege that Mr. Dawson or his firm of Dawson, Tilton and Graham, or that Mr. Eberhardt or his firm of Foulston, Siefkin, Schoeppe, Bartlett and Powers (all of whom appear upon the Petition) did not have prior notice of the British patent. The language of the affidavit is carefully phrased to omit these people, and the omission may be significant. Otherwise, perhaps the statement could not be made “with facility and with entire safety.”

Obviously, then Coleman has not shown diligence in finding the Darby patent. Indeed Coleman has not even shown that the reference is newly discovered. On this basis alone, the motion should be denied.

II.

The British Patent Is Not of That Substantial Character Which Seems, *Prima Facie*, to Seriously Threaten the Validity of the Patent in Suit.

Appellant in its motion urges that the Darby patent “vitiates or, at the very least, *prima facie*, seriously threatens the validity of the patent.” (See *Motor Improvements, Inc. et al. v. General Motors Corp. et al.*, 105 F. 2d 893 (6th Cir., 1931).)

There is no such threat here.

The patent in suit is for a gas-burning wall heater designed to be installed in the wall of a room and connected to a chimney discharging through the roof to the outside atmosphere. The fireplaces upon which appellant relied at the trial and on appeal, and which were held to be insufficient to anticipate the claims of the patent, were at least installed in a wall and connected to a chimney. But the device described in British patent No. 502,945 is not designed to be installed in a wall nor is it connected to a chimney.

Darby's device is a “convection heater particularly adapted to be placed *against a wall*” and it discharges its products of combustion as well as any heated air directly into the room. [Specification, p. 1, lines 100-101.] (*Italics added.*) True, the specification [p. 1, lines 45-51] contains the vague statement that “the radiator can be used in combination with a gas, oil, electric or solid fuel fire already provided with primary heat radiating means, in which case the radiator forming the subject of this invention will constitute secondary heat radiating means.” In that event Darby suggests using as primary heat radiating means “a burner adapted to produce in

part luminous radiation and in part heat radiation . . . passing through an opening formed in front of the hollow body at the level of the burner. . . .” [Specification, p. 1, lines 55-70.]

However, counsel for appellant [Motion, p. 5] state that the Darby patent “clearly discloses a heat exchanger or economizer designed and adapted to be combined with *any* gas heater for identically the same purposes as those described by the patent in suit,” and then argue that:

“From the drawings and description of the Darby patent, the ‘secondary heat radiating means’ is mounted above and combined with any gas heater—as, for example, appellant’s or appellee’s lower heater. The products of combustion then pass up into and through the Darby radiator or ‘hollow body 30.’ Additional air passes up from around the lower heater and into openings or lowers (*sic*) 36, and around the exterior of the radiator 30, and out opening 35. This provides not merely an intermediate grill for releasing the primary heat from the lower heater, but, in addition, it supplies a second grill opening 35 higher up for the second stage warm air discharge. No gas is burned in Darby’s secondary heater or economizer. The Darby structure will clearly reduce stratification and increase air circulation precisely as does appellee’s instant device.” (Appellant’s Motion, p. 6.)

This argument goes far beyond the facts. Darby does not say that his device can be used with “*any* gas heater.” This is merely an assumption of counsel. At the most Darby suggests using his device with a “primary heat radiating means.” The manner of using his device, as stated by Coleman, “with any gas heater . . . for example appellant’s lower heater” is left completely to

conjecture. And Darby does not indicate that “no gas is burned in Darby’s secondary heater or economizer.” On the contrary, *in every example Darby gives, gas is burned in his device.*

“Such a disclosure in a foreign patent is not a sufficient base for supposing modifications and changes which a skilled mechanic could make and for thereby demonstrating lack of invention by a later United States patentee, who solved the requirements of principle and of practical operation.” (*Westinghouse Electric and Manufacturing Co. v. Wadsworth Electric Manufacturing Co.*, 36 F. 2d 319, 321 (6th Cir., 1929).)

“A foreign patent is to be measured as anticipatory not by what might have been made out of it, but by what is clearly and definitely disclosed by it.” (*Steiner Sales Co. v. Schwartz Sales Co.*, 98 F. 2d 999, 1003 (10th Cir., 1938), cert. den. 305 U. S. 662. See also *Alma Motor Co. v. United States*, 134 Fed. Supp. 641, 646 (Ct. Cls. 1955).)

“An American patent is not anticipated by a foreign patent, unless the latter exhibits the invention in such full, clear, and exact terms as to enable any person skilled in the art to practice it without the necessity of making experiments.

“‘. . . Inference as distinguished from disclosures, especially when drawn in the light of after events, cannot be accepted as a basis of anticipation.’” (*Switzer et al. v. Marzall*, 96 Fed. Supp. 332, 333 (D. C. D. C., 1951).)

But even if the Darby heater were mounted above another gas heater and no gas were burned in the Darby heater, as counsel seeks to infer, the result would not be

the combination required by the claims of the patent in suit. Darby's heater discharges the products of combustion along with any heated air through a single discharge opening (the grille 27) *directly into the room*, rather than into a flue, as in the patented device.

Moreover, the claims of the patent in suit (which appellant's motion papers studiously ignore) require that the horizontal cross section of the second or upper radiator be substantially smaller than that of the first or lower radiator. Darby teaches nothing about this important proportion.

The patent in suit states:

“ . . . if the horizontal cross section of the upper radiator is constricted, preferably until turbulent flow conditions obtain, a large increase in draft, say due to a tall chimney or a high wind, will have a minimum effect at the draft hood below the radiator. Hence the suction at the relief opening of the draft diverter tends toward a constant value. If the system is designed so that it barely draws in air through the draft hood with a short flue (say one four feet high) it will pull only a slightly greater proportion if the flue height is increased. Loss of heat by leakage through the draft hood into the second radiator may thus be held at a low figure even if the wall heater is installed with a flue system that creates excessive draft, and heating efficiency is thereby improved.” [Patent No. 2,602,441, lines 4-19, R. 744.]

As the District Court found, wall heater manufacturers have no control of the height of flues attached to their heaters in buildings and prior to the invention of the patent in suit, there was inadequate control of the amount of warm air sucked from the room into the flue from the

draft hood and thus lost, with consequent decrease in efficiency. [R. 21.] But, as the trial court also found, the combination of elements in the claim (including the two radiators with their specified cross-sectional proportions) “cooperate to permit the thermal input of wall heaters to be increased without bringing about excessive wall temperatures at any point in the wall from floor to ceiling,” and “has simultaneously solved the hot wall problem from floor to ceiling, increased thermal efficiency while permitting increased heat input, improved air circulation within the room, minimized heat loss due to warm air being sucked out of the room into the flue through the draft hood, and has rendered this heat loss substantially independent of flue height.” [R. 21-22.]

The Darby patent, like the prior art references introduced by appellant at the trial, fails completely to teach any solution of problems of wall heater construction, so that, even if it were in the record, it would not have changed the result in the trial court.

Indeed, as far as the record goes, the Darby disclosure is no more than a paper patent, never reduced to practice.

“In our judgment, . . . [Darby’s] purely paper device is at the best but cumulative evidence to the alleged anticipations considered in the opinion heretofore announced.” (*Motor Improvements, Inc. et al. v. General Motors Corp. et al.*, 105 F. 2d 892, 893 (6th Cir., 1939).)

Certainly Coleman’s “newly discovered evidence” does not necessitate a different conclusion by the Court in the case at bar. Nor does it in any manner seriously threaten the validity of the patent in suit.

III.

Summary.

Appellant has failed to show either of the two prime requisites for further trial.

It has failed to show that the British patent to Darby could not have been found prior to the trial. In fact the contrary appears.

It has also failed to show that the “newly discovered evidence” is, *prima facie*, of that substantial character as to seriously threaten the validity of the patent in suit. The Darby patent is a foreign patent entitled to little weight. It is, so far as the record shows, a mere paper patent. Certainly Darby’s disclosure never inspired anyone to mount a second heater above a first, as counsel suggests. This is plain from the testimony of appellant’s design engineer quoted at page 23 of the opinion of this Court. And even if this had been done, the result would not have been what the claims of the patent in suit require. On the contrary, the result would have been a monstrosity that discharged both hot air and products of combustion into the room, and which lacked the controls present in the patented device by which heat loss is rendered substantially independent of flue height.

As this Court has stated, “the parties had a fair trial in which the court met and correctly disposed of all pertinent and material issues of law and fact.” The attempt to inject the Darby patent is unjustified. There must be an end to litigation. Appellant’s motion to remand for further trial should be denied.

APPELLANT'S PETITION FOR REHEARING RE-
ARGUES MATTERS PREVIOUSLY DECIDED.
THE PETITION SHOULD BE DENIED.

Making assertions plainly contrary to the record, appellant, The Coleman Company, seeks a rehearing in this Court.

I.

The Structures in Suit Are Integrated Units.

Despite the fact that exemplars of both Holly's patented wall heater and Coleman's infringing devices were before this Court and considered by this Court in rendering its opinion, Coleman states that:

"The . . . crucial portion of the decision of this Court is based upon a misconception of the structures involved in this case, particularly appellant's [Coleman's] structures to which the opinion is applied."

Coleman further states that:

"Defendant's [Coleman's] economizer and heater structure are *not* a single device 'incapable of division or separate use.' On the contrary, defendant's structures are made in separate units which are installed separately, and one of the units may be used independently and without the other. We regret very much that we have not made this clear to the Court in our earlier briefs." (Pet. p. 18.)

The unvarnished reason for Coleman's failure to make "this clear to the Court" is that the record *cannot* support any such assertion.

True, the Holly patented device and the Coleman infringing models are two-piece units comprising an eco-

nomizer and a lower box. However, the two pieces *must* be installed together as a unit.

As Jack Hollingsworth explained at the trial:

“ . . . [The economizer] is a very definite part of the appliance because it performs a part of the overall function of the appliance.” [R. 143.]

Coleman's Kice also pointed out that both Coleman and Holly “make our own ventilated flue stacks [economizers] and have approval by A. G. A. *as a unit* to be sold with the heater itself.” [R. 301.] (*Italics added.*)

The record also clearly shows that using the lower box alone with an ordinary flue pipe in place of the economizer would void A. G. A. approval and make it impossible to operate the heater. [R. 173.] This fact was emphasized by Mr. Lyon, Coleman's counsel, at the trial as follows:

“[Without the economizer] it would be impossible to use it [the heater] under A. G. A. rules, which the witness, I think, will affirm with me, *none of these heaters can be operated without that approval.*

* * * * *

It might burn a house up. . . .” (*Italics added.*)

Contrary to Coleman's assertions, the uncontroverted record shows then that the economizer is “to be sold with the heater itself.” [R. 301.] And if the heater is installed without the economizer “It might burn a house up.” [R. 142.]

Coleman's Kice provided further conclusive proof that the structures in suit are integrated units. Throughout the trial he referred both to Holly's two-piece patented device as a *unit* and to Coleman's two-piece infringing device as a *unit*. [R. 301, 305, 309, 315-316, 331, 332, 337, 343, 346, 348, 358, 374 and 379.]

Thus, even though the Coleman and Holly heaters are two-piece devices, this Court correctly described the structures in suit as “intergrated,” “unitary” devices.

II.

Holly’s Patent Meets the Requirements of the A & P Case.

Again, despite the opinion of this Court and the findings of the District Court, Coleman on petition for rehearing states:

“This leaves us in the same position as before with the problem of determining whether, after combining the parts into a single unitary structure, the parts cooperate in such a way as to produce a new and surprising result. Moreover, the A & P decision proclaim that this new and unexpected result must be affirmatively specified and demonstrated by appellee.”

The writer of the above statement could not have read this Court’s opinion or the District Court’s findings. As this court approvingly pointed out in its opinion, the trial court found:

“ . . . that the combination of elements described and claimed in the patent in suit cooperate to permit the thermal in-put of wall heaters to be increased without bringing about excessive wall temperatures at any point in the wall from floor to ceiling, and without reducing thermal efficiency of the wall heaters; and that the invention of the patent in suit has simultaneously solved the hot wall problem from floor to ceiling, increased thermal efficiency while permitting increased heat in-put, improved air circulation within the room, minimized heat loss due to warm

air being sucked out of the room into the flue through the draft hood, and has rendered this heat loss substantially independent of flue height.”

Such a result set out in the specifications of the patent in suit and found to exist by the trial court clearly meets the test laid down in the *A & P* decision, 340 U. S. 147 (1950).

The petition for rehearing should be denied.

Respectfully submitted,

JAMES B. CHRISTIE,

RICHARD B. HOEGH,

Attorneys for Plaintiff-Appellee.



No. 14711

UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT.

THE COLEMAN COMPANY, INC., a Corporation,
Appellant,

vs.

HOLLY MANUFACTURING COMPANY, a Corporation,
Appellee.

REPLY TO APPELLEE'S BRIEF OPPOSING
APPELLANT'S MOTION TO REMAND AND
PETITION FOR REHEARING.

JOHN F. EBERHARDT,
FOULSTON SIEFKIN SCHOEPPEL BARTLETT & POWERS,
608 Fourth National Bank Building,
Wichita 2, Kansas,
General Counsel for The Coleman Company, Inc.,

HORACE DAWSON,
DAWSON, TILTON & GRAHAM,
209 South LaSalle Street,
Chicago 4, Illinois,

FREDERICK W. LYON,
LYON & LYON,
811 West Seventh Street,
Los Angeles 17, California,

Attorneys for Defendant-Appellant.

FILED

MAY 25 1956

PAUL P. O'BRIEN, CLERK



TOPICAL INDEX

I. Appellee's Brief in Opposition Does Not Even Mention, Much Less Attempt to Answer, All Important Point III of the Petition for Rehearing	1
II. The Affidavits of Counsel for Appellant Establish Diligence in Presenting the Motion to Remand for Further Trial	8
III. The Darby Patent Seriously Threatens Validity of Appellee's Patent	10
IV. Appellant's Heaters and Economizers Are Not Integrated Units	10
Conclusion	12
Certificate of Counsel	13

INDEX TO AUTHORITIES

Bates v. Coe, 98 U. S. 31, 25 L. ed. 68	10, 12
Marconi Wireless Telegraph Company of America v. United States, 320 U. S. 1, 87 L. ed. 1731, 63 S. Ct. 1393	8
Zachos v. Sherwin-Williams Co., 166 Fed. 2d 79, at 80, C. C. A. 5	10



No. 14711

UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT.

THE COLEMAN COMPANY, INC., a Corporation,
Appellant,

vs.

HOLLY MANUFACTURING COMPANY, a Corporation,
Appellee.

REPLY TO APPELLEE'S BRIEF OPPOSING
APPELLANT'S MOTION TO REMAND AND
PETITION FOR REHEARING.

I.

**Appellee's Brief in Opposition Does Not Even Mention,
Much Less Attempt to Answer, All Important
Point III of the Petition for Rehearing.**

Appellee's brief in opposition to appellant's Motion to Remand and Petition for Rehearing is electrifying—not for what it says (which will be refuted hereinafter), but for what it pointedly fails to mention.

The crux of this litigation is now and has always been the supposedly unique feature of appellee's patent: *that the air utilized by its economizer originates from the space*

surrounding its lower heater. The principal portion of our Petition for Rehearing (Point III, pages 25-33) is devoted to defining this inescapable issue and to demonstrating that never has anyone attempted to explain, much less to establish, how or why air *from this particular source* is one whit more or less efficacious or produces any different result in an economizer than air from any other available source (such as air drawn into the bottom of the economizer *from the room*, or air into the top of the economizer via a grille and sucked down and out into the room through the economizer's lower grille by means of a fan, e. g.). *Yet in its opposing brief, appellee makes no mention whatever of this crucial problem.* And although appellee manifestly concedes (since it cannot and does not deny) the argument set forth in Point III of our Petition for Rehearing, yet, at pages 14-15 of its brief in opposition, it again evades any attempt to specify how or in what manner *the use of this particular air* can or does cause a new, different, or unique result in the efficiency of its heater-economizer unit. Instead, it merely quotes from the District Court's general finding that:

“ . . . the combination of elements described and claimed in the patent in suit cooperate to permit the thermal in-put of wall heaters to be increased without bringing about excessive wall temperatures at any point in the wall from floor to ceiling, and without reducing thermal efficiency of the wall heaters; and that the invention of the patent in suit has simultaneously solved the hot wall problem from floor to ceiling, increased thermal efficiency while permitting increased heat in-put, improved air circulation within the room,

minimized heat loss due to warm air being sucked out of the room into the flue through the draft hood, and has rendered this heat loss substantially independent of flue height.” (Br. in Opposition, p. 14; our emphasis)

Does this purport to explain how the above-averred results are in any degree or respect *caused by or attributable* to the fact that appellee’s economizer employs air *originating from the space surrounding its lower heater*? This broad finding insists that appellee’s heater-economizer achieves the above-described results, or, more accurately, that “the combination of elements described and claimed in the patent” do so. But the issue in this appeal is not whether some vague “combination of elements” produces certain effects, nor whether appellee’s heater-economizer brings about those results. Instead, the issue is whether appellee’s heater-economizer achieves these results *by reason of the fact that the air utilized in its economizer originates from the air space surrounding its lower heater*, and, if an affirmative answer to this determinative question is to be given, the *A & P* decision requires the Court to point out wherein that particular air may be held in any degree responsible for the heater-economizer’s efficiency.

It must be constantly borne in mind that appellant’s lower heater is itself ancient art not contended to infringe. See, for example, the testimony of appellee’s own John Hollingsworth:

“Q. Mr. Hollingsworth, before any invention of yours there were space wall heaters similar to these that we have discussed, the defendant’s and the plain-

tiff's, that had radiators substantially similar to the lower radiator?

"A. Yes.

"Q. They had burners in substantially the same way, did they not?

"A. Yes. The whole first box assembly is quite similar to those that have been in use for quite some time.

"Q. Long before any alleged invention of yours?

"A. Oh, yes. We built them ourselves long before that.

"Q. They had the draft hood, they had the outer box, the burner, the radiator, the baffle in the back of the radiator between the back of the box and the radiator?

"A. Yes, in substantially the same configuration that is on these." (R. 159-160)

It must also be borne in mind that the alleged infringement by appellant is *not* the *combining* of an upper economizer with the old lower heating unit. Appellee has at all times conceded — as pointed out in Point III of our Petition for Rehearing, to which appellant has failed to respond — that appellant may freely manufacture and sell lower wall heaters combined with upper economizers *if, and so long as, appellant's upper economizers draw the air they utilize from any source other than the space surrounding the lower wall heater.*

See, for example, the testimony of appellant's Jack Kice on page 358 of the instant Record:

"The Court: Now, with respect to the Holly, where do you say the air comes from that is emitted from the *upper grille* [i. e., from the 'economizer']?

"The Witness: The Holly unit depends on its air supply from the opening near the floor; and is dependent on a channel being provided by the carpenter or the plasterer between the lower portion and the stud space.

"The Court: In other words, it is your understanding that all the air which is emitted from the upper grille must come from the space between the studs and the heater [lower wall heater, i. e.], exterior of the heater box?

"The Witness: That is my understanding exactly. And it is the way I read their patent. I don't believe there is anything else.

"The Court: None of it can come from the so-called lower box proper, the interior of the lower box?

"The Witness: No, Your Honor. The air supply for the secondary heat exchanger ['economizer'] must come from the space outside the lower box, between it and the stud space."

This is unarguably correct inasmuch as the only litigated controversy on the "infringement" issue was whether appellant's economizer did or did not utilize any appreciable amount of air *originating from the space surrounding its lower wall heater*. See, in this connection, appellee's precise admission of this at page 45 of its original brief to this Court:

"It should be pointed out that the only possible difference between the parties on the issue of infringement is whether the Coleman economizer is 'adapted to receive air flowing upward outside the first box and inside the wall' as claimed in the patent in suit."

In fact, this point is expressly recognized and conceded by Findings 24, 25, and 26 (R. 25-26) of the trial court itself.

Therefore, undeniably appellee has never claimed and cannot now contend that the "unit" integration of its heater and economizer supplies any basis for its patent. *Coleman is free to construct and sell a one-unit heater-economizer without infringement if the economizer receives its air from the room instead of from the stud space surrounding the heater portion of such unit.* Consequently, whether or not appellee's heater-economizer is a compact unit manifestly has no bearing whatsoever upon the controlling issue involved: the source and alleged peculiar efficacy of the air utilized in its economizer.

All of which returns us inevitably to the inexorable truth that if appellee's heater-economizer is patentable, this is true solely (a) because the air utilized in its economizer comes from the stud space surrounding the lower wall heater, and (b) because this particular air has some unique quality which is possessed by air obtainable from no other source, which enables appellee's economizer to achieve unusual results. The fact, if it be a fact, that appellee's heater-economizer functions and performs in an amazingly unique and efficient manner, and accomplishes all results described in the above quoted finding of the trial court, is utterly immaterial unless the cause of such performance is the particular source of the air its economizer utilizes. By the same token, it was and is incumbent upon appellee to demonstrate — and, under the A & P decision, for the trial court and for this Court to find and

specify — how and why air from that special source is any different from any other available air, and how and why such air affords a unique and amazing “fuel” for appellee’s economizer.

In fine, appellee itself admits that its sole and only unique or patentable feature is the type of air it utilizes in its economizer (albeit we flatly deny that for “economizer” purposes this air is in any respect or degree better or more efficient than general room air — see discussion at pages 32-33 of our Petition for Rehearing). Nevertheless, nowhere in its patent claims or in its original brief to this Court has appellee ever attempted to explain how such air can cause any different result than any other air. And although we devoted an entire section (III) of our Petition for Rehearing to clarifying this precise issue, and demonstrating that the instant record cannot therefore possibly sustain a finding of patent validity, appellee, in its Brief in Opposition, has not even attempted to answer this devitalizing (to appellee’s suit) question regarding the allegedly peculiar virtues of air from this specific source.

In this same connection, the trial court of course was unable to and did not specify how or why the working effects of appellee’s heater-economizer *may be attributed to the source of the air employed in its economizer, or how or why utilization of that particular type of air can or does produce any unusual results in appellee’s unit*. Nor, of course, has this Court in its opinion attempted to formulate any answer to this determinative question — inasmuch as there is neither patent claim, pleading, evidence,

or argument in appellee's briefs, upon which an answer thereto may be predicated. It follows that the basic requirements of the A & P case are not satisfied by the present opinion.

Regardless, therefore, of any of the other issues raised by the Motion to Remand and Petition for Rehearing, we submit the trial court's judgment is palpably erroneous and must be reversed.

In view of the foregoing, which must completely terminate this litigation, we see no occasion for extensive discussion herein of the remaining issues appellee *does* discuss in its Brief in Opposition. Nevertheless, we wish to make the following succinct reply thereto:

II.

The Affidavits of Counsel for Appellant Establish Diligence in Presenting the Motion to Remand for Further Trial.

In Point I of its Brief in Opposition (pages 3-5), appellee contends appellant's counsel are guilty of laches in presenting the Darby patent to this Court for its consideration, relying primarily upon two early district court decisions which are plainly contrary to the holding and spirit of *Marconi Wireless Telegraph Company of America v. United States*, 320 U. S. 1, 87 L. ed. 1731, 63 S. Ct. 1393. Moreover, appellee presents its argument as though this issue concerned only the private litigants herein, and completely ignores the compelling public interests involved (with regard to which, see Point II, especially at pages 7-9, of our Motion to Remand).

In any event, we submit the affidavits filed herein clearly demonstrate diligence, and supply no basis whatever for the imputation of laches to appellant. Said affidavits demonstrate that Mr. Lyon, counsel for appellant who has been in charge of the trial, the selection and production of evidence, and argument and briefing before both the District Court and this Court of Appeals, had no advance knowledge of the existence of the prior British patent upon which appellant now relies. The only person who had any knowledge of this patent was a new employee of Horace Dawson. This employee discovered the Darby patent in January, 1956, more than a month after the cause had been submitted to this Court for determination. The existence of this patent was not drawn to Mr. Dawson's attention until after the decision of this Court on April 10, 1956. Immediately thereupon this patent was brought to the attention of Mr. Lyon, and counsel for appellee were immediately notified of the existence of the British patent. The Motion to Remand was prepared and filed as soon thereafter as possible. The only person charged with the conduct of this litigation was without knowledge of this British patent and had no reason to suspect that it existed. The affidavits show that the searches made were conducted in the ordinary manner used to discover the prior art. These searches failed to disclose this British patent. This British patent was found in the private files of one of the examiners in the patent office where appellant had no reason to believe such a document would be filed. It is believed that this is a clear showing of diligence on the part of counsel in charge of this litigation in adducing all pertinent evidence. The

doctrine set forth in *Zachos v. Sherwin-Williams Co.*, 166 Fed. 2d 79, at 80, C. C. A. 5, should be followed and this cause remanded for further findings and decision after hearing the evidence as to this prior British patent.

III.

The Darby Patent Seriously Threatens Validity of Appellee's Patent.

In Point I of our Motion to Remand for Further Trial (pages 2-7) we pointed out wherein the Darby patent constitutes a serious threat to validity of appellee's patent assuming, for purposes of argument, that the "unitary" nature of appellee's heater-economizer could conceivably supply any basis for its patent. With respect to appellee's answer thereto (Point II, pages 6-10), we submit appellee's own extended argument demonstrates the seriousness of the factual issue posed by the Darby patent which warrants the remand for further trial requested by appellant.

IV.

Appellant's Heaters and Economizers Are Not Integrated Units.

In Point I, at pages 16-21, of our Petition for Rehearing, we pointed out that *Bates v. Coe*, 98 U. S. 31, 25 L. ed. 68, does not support the present opinion herein, but, on the contrary, compels the opposite result, inasmuch as the Coleman lower heaters and the Coleman economizers are not manufactured and sold exclusively for *unit* installation, and are not "incapable of division or separate use".

In response thereto, appellee accuses us of making an incorrect assertion "plainly contrary to the record" (p.

12), and insists the record establishes the Coleman heaters and the Coleman economizer "must be installed together as a unit" (p. 13). In support, appellee quotes Mr. Hollingsworth and Mr. Frederick W. Lyon, both quotations, however, having reference to the *Holly* heater-economizer. Also, appellee refers generally to a number of instances in which Mr. Jack Kice used the word "unit" loosely to describe whatever device (whether lower heater, upper economizer, or both units together) about which he was testifying. The specific quotation from R. 301 of Mr. Kice that,

"... we both make our own ventilated flue stacks [i. e., 'economizers'] and have approval by A. G. A. as a unit [i. e., of this economizer or 'unit'] to be sold with the heater itself",

clearly means, merely, that A. G. A. has approved the sales of Coleman's economizers for installation with its wall heaters.

Without, however, desiring to enter into extended argument regarding isolated bits of testimony, we insist the record clearly establishes that while *Holly* manufactures and sells no heaters except in connection with economizers, Coleman does manufacture a number of wall heaters which can be and are frequently installed *without any economizer*; also, that its economizer, separately manufactured and sold, *may be installed with or omitted from these heaters*. While it is true that Coleman has not sought or obtained A. G. A. approval of its Model 64, 67, 68, or 69 wall heaters except in conjunction with its separate economizer, the fact remains that Coleman does manufacture other wall heaters which can be installed *with or without the Coleman econo-*

mizer — and that, therefore, as pointed out in our Petition for Rehearing, the Coleman economizer is a separate unit, offered for sale as such independently of such wall heaters, and *not* “incapable of division or separate use” per *Bates v. Coe, supra*.

As plainly refuting appellee’s contention that the Coleman economizer *must* be installed with every Coleman wall heater “as a unit”, see plaintiff’s own Exhibit 27, R. 803, containing the instructions for installing Coleman’s heat economizer:

“The heat economizer is designed for installation on Coleman Wall Heaters, Models 64, 65, 66, 67, 68 and 69 . . . This heat economizer must be used in the wall above the heater on Models 64, 67, 68 and 69.”

This makes it unmistakably clear that the Coleman economizer must be installed with Coleman Heaters Models 64, 67, 68, and 69, but that, while it is also adopted for and *may* be used with Models 65 and 66, the latter two models may be installed *with or without the economizer*. By the same token, the argument advanced in Section I of our Petition for Rehearing is fully supported by the record.

CONCLUSION.

For the reasons and upon the authorities submitted herein and in the Motion to Remand and Petition for Rehearing, we submit appellant should be accorded the relief prayed for in said motion and petition. We further submit that appellee’s failure to respond to Point III of the Petition for Rehearing, and its manifest inability to explain

even generally, much less specifically as required by the A & P decision, why or how the air utilized in its economizer is better than or different from air available from other sources, or wherein this air enables its heater-economizer to perform any unique function, compels a reversal of the judgment below.

Respectfully submitted,

JOHN F. EBERHARDT,
FOULSTON, SIEFKIN, SCHOEPPPEL, BARTLETT & POWERS,
608 Fourth National Bank Building,
Wichita 2, Kansas,
*General Counsel for The Coleman Com-
pany, Inc.,*

HORACE DAWSON,
DAWSON, TILTON & GRAHAM,
209 South LaSalle Street,
Chicago 4, Illinois,

FREDERICK W. LYON,
LYON & LYON,
811 West Seventh Street,
Los Angeles, California,
Attorneys for Defendant-Appellant.

CERTIFICATE OF COUNSEL.

The undersigned, one of the attorneys for defendant-appellant in the captioned case, hereby certifies that on May 24, 1956, he served three copies of the foregoing Reply to Appellee's Brief Opposing Appellant's Motion to Remand and Petition for Rehearing upon James B. Christie, Esq.,

and Richard B. Hoegh, Esq., attorneys of record for plaintiff-appellee herein, by depositing the same in the United States mails in a sealed envelope, with sufficient prepaid postage attached, properly addressed to said attorneys at 595 East Colorado Street, Pasadena 1, California.

JOHN F. EBERHARDT.

No. 14711

**UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT**

THE COLEMAN COMPANY, INC., a Corporation,
Appellant,

vs.

HOLLY MANUFACTURING COMPANY, a corporation,
Appellee.

**MOTION TO REMAND FOR
FURTHER TRIAL
AND
PETITION FOR REHEARING**

JOHN F. EBERHARDT,
FOULSTON SIEFKIN SCHOEPEL BARTLETT & POWERS,
608 Fourth National Bank Building,
Wichita 2, Kansas,
General Counsel for The Coleman Company, Inc.,

HORACE DAWSON,
DAWSON, TILTON & GRAHAM,
209 South LaSalle Street,
Chicago 4, Illinois,

FREDERICK W. LYON,
LYON & LYON,
811 West Seventh Street,
Los Angeles 17, California,

Attorneys for Defendant-Appellant.

FILED

MAY -9 1956

PAUL P. O'BRIEN, CLERK

TOPICAL INDEX

Motion to Remand for Further Trial	1
I. The Nature and Importance of Appellant's Newly Discovered Evidence	2
II. Public Interest and Clear Precedent Sustain Appellant's Motion to Remand	7
III. The Record Does Not Convict Appellant of Laches with Respect to Its Newly Discovered Evidence	14
Petition for Rehearing	16
I. A Key Portion of the Decision of This Court Is Based Upon a Misconception of the Struc- tures Involved	16
II. Combining the Wall Heater and Economizer in a Compact Unitary Structure Is not a Result Satisfying the Requirements of the A & P De- cision	21
III. The Structure Asserted by Appellee to Be Novel and Unique — Utilization by Its Upper Econ- omizer of Air Entering It from the Top of Its Lower Gas Heater — Has Never Been Shown to Yield Any New or Unexpected Result As Re- quired by the A & P Decision	25
Conclusion	34
Certificate of Counsel (Re Purpose and Service)	36

INDEX TO AUTHORITIES

CASES

American United Life Ins. Co. v. Haines City, Fla., 117 F. 2d 574 (C. C. A. 5)	11
Bank of China v. Wells Fargo Bank & Union Trust Co., 190 F. 2d 1010 (C. C. A. 9)	9
Bates v. Coe, 98 U. S. 31, 25 L. ed. 68	17, 18, 20
Bosley, D. W., Co. et al. v. Wirfs, 20 F. 2d 629 (C. C. A. 8)	14
Cincinnati Traction Co. v. Pope, 212 Fed. 719 (C. C. A. 6)	14
D. W. Bosley Co. et al. v. Wirfs (see "Bosley")	
Fidelity Trust Co. v. Board of Education, 174 F. 2d 642 (C. C. A. 7)	11
Firestone Tire & Rubber Co. v. Sieberling, 245 Fed. 937 (C. C. A. 6)	14
Gairing Tool Co. v. Eclipse Interchangeable Counter- bore Co., 48 F. 2d 73 (C. C. A. 6)	2, 11, 15
General Electric Co. v. Yost Electric Mfg. Co., 139 Fed. 568 (C. C. A. 2)	21
General Motors Corp. v. Franklin Die Casting Co., 41 F. Supp. 340 (N. D. Ill.)	10
Gratiot v. Farr Company, No. 13352, Order of May 27, 1953 (C. C. A. 9)	13
Great Atlantic & Pacific Tea Co., The v. Supermarket, 340 U. S. 147, 95 L. ed. 162, 71 S. Ct. 127	16
Hazel-Atlas Glass Co. v. Hartford-Empire Co., 322 U. S. 238, 88 L. ed. 1250, 64 S. Ct. 997	7
Heald v. Rice, 104 U. S. 737, 26 L. ed. 910	22
John Simmons Co. v. Grier Brothers Co. (see "Sim- mons")	

INDEX TO AUTHORITIES (Continued)

Kliaguine v. Jerome, 91 F. Supp. 809 (E. D. N. Y.)	11
Marconi Wireless Telegraph Company of America v. United States, 320 U. S. 1, 87 L. ed. 1731, 63 S. Ct. 1393	13
Mercoid Corp. v. Mid-Continent Investment Co., 320 U. S. 661, 88 L. ed. 376, 64 S. Ct. 268	8
Precision Instrument Mfg. Co. v. Automotive Main- tenance Mach. Co., 324 U. S. 806, 89 L. ed. 1381, 65 S. Ct. 933	8
Simmons, John Co., v. Grier Brothers Co., 258 U. S. 82, 66 L. ed. 475, 42 S. Ct. 196	9, 10
The Great Atlantic & Pacific Tea Co. v. Supermarket (see "Great")	
U. S. Appliance Corp. v. Beauty Shop Supply Co., 121 F. 2d 149 (C. C. A. 9)	23
United States Air Conditioning Corp. v. Governair Corp., 216 F. 2d 430 (C. C. A. 10)	23
Zachos v. Sherwin-Williams Co., 166 F. 2d 79 (C. C. A. 5)	13, 15

STATUTES

United States Code, Title 28, Sec. 2106	9
---	---



No. 14711

**UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT**

THE COLEMAN COMPANY, INC., a Corporation,
Appellant,

vs.

HOLLY MANUFACTURING COMPANY, a corporation,
Appellee.

**MOTION TO REMAND FOR
FURTHER TRIAL
AND
PETITION FOR REHEARING**

MOTION TO REMAND FOR FURTHER TRIAL

COMES NOW appellant in the above entitled cause and respectfully requests that this Court enter an order remanding this case for further trial by the court below upon the ground of substantial evidence newly discovered by appellant subsequent to this Court's decision herein which prima facie vitiates or, at the very least, seriously threatens validity of appellee's patent, all in accordance

with *Gairing Tool Co. v. Eclipse Interchangeable Counter-bore Co.*, 48 F. 2d 73 (C. C. A. 6), and related authorities, in which connection appellant respectfully urges:

I.

**The Nature and Importance of Appellant's Newly
Discovered Evidence**

Subsequent to the decision rendered herein on April 10, 1956, appellant discovered vital new evidence comprising a March 28, 1939, British Patent to Darby, No. 502,945, a copy of which patent is attached to the Affidavit of Frederick W. Lyon separately filed with this Court in connection with the instant motion.

The patent here in suit was filed April 23, 1951. The Darby patent is prior art by more than one year. If the Darby patent anticipates the patent in suit — and appellant submits it does so — perforce it invalidates appellee's patent.

This Court's opinion seemingly predicates validity of appellee's patent upon the theory that it was the first to adapt the "economizer" or secondary heater principle, revealed by ancient "fireplace" art, to current urban heating conditions by *combining* a primary and a secondary heater *into a single integrated, compact unit utilizing gaseous fuel*, and, therefore, readily installable in modern homes:¹

"The patent in suit is . . . so designed as to be easily fitted into the wall of a room . . . Outwardly, the entire *integrated device* resembles . . ." (p. 3)

1. Quotations are from the pages of this Court's original opinion, with italics added by us.

"The McLeod patent (1920) . . . utilized as its source of heat the conventional open-faced *fireplace* of that period . . . *burning solid fuel* such as wood or coal." (p. 9)

"In the Browell patent (1882) a *fireplace* is also utilized as a source of heat." (p. 10)

"The Hamilton device . . . appears to be an open-faced *fireplace* of the ordinary character in common use in that period." (p. 12)

"From the entire record it appears that a 'heat exchanger' or 'economizer' of this peculiar construction and arrangement has never been embodied in *any type of mechanical wall heater apparatus* prior to its application and use in the Holly device. The earlier patented devices all of which were in evidence cannot be said to embody in any material way the dual heat-passing functional operation accomplished by the use of the upper box 'economizer' *integrated into the complete Holly device*. In our opinion . . . the Holly combination . . . spells out . . . a new and useful improvement in wall heaters *fired with gaseous fuel* . . ." (p. 15)

". . . the *compact wall combination* in suit . . ." (p. 15)

". . . the Holly patentees definitely claimed the structure and utilization of this new 'economizer' assembly as *an essential and integral part of their binary device* . . . and . . . as constituting a new and necessary element and part of the *entire mechanism*, and one essential to the successful performance of the functions, purpose and overall use for which the *combination* was designed." (p. 16)

“... the invention of the patent in suit . . . represents a new and useful improvement in wall heaters *fired with gaseous fuel . . .*” (p. 19)

“In our view these contentions as to anticipation are adequately refuted by the physical construction and operation of *these old fireplace devices* to which we have previously referred at length.” (p. 21)

“The three prior *fireplace* patents . . . represent earlier concepts of heat conveyance *through the use of such fireplaces*, but in devising their apparatus [sic] the Holly patentees clearly appear to have parted company with the basic design portrayed by these concepts to create something new in overall construction and functional operation — a *compact unitary* wall device which could easily be adapted to the modern pattern and mode of living under conditions of urban life (*or where gas would be available*) and where an effective and reliable single-room *gas burning* heater device would be highly desirable and certainly more useful.” (p. 23)

The Darby patent, filed in 1939, does not merely exemplify the hoary secondary heater or “economizer” art as applied to wood-burning fireplaces in masonry. On the contrary, it describes an economizer embodying the same principles utilized by appellee, *for use in combination with a modern gas-fired heater* (or with any other type of primary heating element):

“The radiator can be used in combination with a gas, oil, electric or solid fuel fire already provided with primary heat radiating means, in which case the radiator forming the subject of this invention will constitute secondary heat radiating means, or the in-

vention can be used in combination with a heating element or fire of any kind having no primary heat radiating means." (Darby Patent No. 502,959, p. 1, col. 1, lines 45-54, both inclusive)

This patent clearly discloses a heat exchanger or economizer designed and adapted to be combined with *any* gas heater for identically the same purposes as those described by the patent in suit. In this connection, it must be remembered that the lower or primary heater of both appellant and appellee is admittedly old, being well known and sold in commercial quantities long prior to the alleged invention of the patent in suit. In fact, appellant's lower or primary wall heater (which, when — but only when — it is combined with appellant's "economizer", has been held by this Court to infringe appellee's patent) had been marketed in precisely its present form long before the patent in suit was filed (e. g., see R-159-160, 320-324). Accordingly, there can be no invention in combining a secondary heater or economizer with a primary gas-fired wall heater in view of the teaching of the Darby patent, which unambiguously asserts it is a "secondary heat radiating means" adapted for use "*in combination with*" any type of gas heater — such as, necessarily, appellant's and appellee's old lower heating unit. The Darby patent clearly demonstrates as old the very *combination* of secondary economizer and lower gas heater which this Court assumed to be novel in positing validity of appellee's patent thereon.

In the foregoing connection, at page 6 of its opinion this Court emphasizes:

“The specifications [of appellee’s patent] also recite that ‘the structure of the invention is such that the *hotter* air is brought out into the room at an intermediate level while *cooler* but still warm air is introduced into the upper part of the room near the ceiling by the 2nd stage warm air discharged thus reducing stratification and increasing air circulation in the room.’ ”

From the drawings and description of the Darby patent, the “secondary heat radiating means” is mounted above and combined with any gas heater — as, for example, appellant’s or appellee’s lower heater. The products of combustion then pass up into and through the Darby radiator or “hollow body 30”.² Additional air passes up from around the lower heater and into openings or lowers 36, and around the exterior of the radiator 30, and out opening 35. This provides not merely an intermediate grill for releasing the primary heat from the lower heater, but, in addition, it supplies a second grill opening 35 higher up for the second stage warm air discharge. No gas is burned in Darby’s secondary heater or economizer. The Darby structure will clearly reduce stratification and increase air circulation precisely as does appellee’s instant device.

The Darby patent likewise points up the materiality of the other prior art patents (McLeod, Browell, and Hamilton) commented upon by this Court in its opinion. Thus, the Darby patent describes a secondary heater built

2. Numbers referred to in this paragraph are those in the Darby Patent specification and drawings.

as a unit for use over and in combination with a lower gas heater *or over a fireplace of any description*:

“ . . . the invention can be used in combination with a gas, oil, electric *or solid fuel fire* . . . or . . . in combination with a heating element *or fire of any kind* . . . ” (Darby patent, *supra*; our emphasis)

Appellant believes the Darby patent discloses the precise element this Court considered to be new and inventive in the patent in suit, more particularly, the combination and integration of a secondary heater or economizer with a lower gas-fired heater, and that, under the authorities hereinafter adduced, this cause should therefore be remanded to the lower court to determine and make findings as to what the Darby patent describes, wherein the patent in suit presents new and novel differences from the Darby structure, whether such differences, if any, amount to invention; and, finally, if inventive differences are found, to redetermine the issue of infringement by finding whether or not such differences are incorporated in appellant's heater-economizer combination.

II.

Public Interest and Clear Precedent Sustain Appellant's Motion to Remand.

The validity of any patent involves the *public interest*. By the same token, the issue here under discussion encompasses considerations far beyond and superior to the private rights of the present litigants. Thus, in *Hazel-Atlas Glass Co. v. Hartford-Empire Co.*, 322 U. S. 238, 246, 88 L. ed. 1250, 64 S. Ct. 997, the United States Supreme Court concisely stated:

“This matter does not concern only private parties. There are issues of great moment to the public in a patent suit. *Mercoïd Corp. v. Mid-Continent Invest. Co.* decided January 3, 1944 (320 US 661, ante, 376, 64 S Ct 268); *Morton Salt Co. v. G. S. Suppiger Co.* 314 US 488, 86 L ed 363, 62 S Ct 402 . . .”

In *Mercoïd Corp. v. Mid-Continent Investment Co.*, 320 U. S. 661, 670, 88 L. ed. 376, 64 S. Ct. 268, the Supreme Court, in a patent infringement proceeding, emphasized the policy considerations underlying requests for equitable relief in such litigation, saying:

“And the determination of that policy is not ‘at the mercy’ of the parties (*id.* 191 US p. 498, 48 L ed 276, 24 S Ct 164) nor dependent on the usual rules governing the settlement of private litigation. ‘Courts of equity may, and frequently do, go much farther both to give and withhold relief in furtherance of the public interest than when only private interests are involved.’ ”

To the same effect is the recent decision of that court in *Precision Instrument Mfg. Co. v. Automotive Maintenance Mach. Co.*, 324 U. S. 806, 815, 89 L. ed. 1381, 65 S. Ct. 933:

“Moreover, where a suit in equity concerns the public interest as well as the private interests of the litigants this doctrine [referring to the equitable principle of ‘unclean hands’ as appropriate in a patent infringement action] assumes even wider and more significant proportions. For if an equity court properly uses the maxim to withhold its assistance in such a case it not only prevents a wrongdoer from enjoying the fruits of his transgression but averts an injury to

the public. The determination of when the maxim should be applied to bar this type of suit thus becomes of vital significance. (Citation.)

“In the instant case Automotive has sought to enforce several patents and related contracts. Clearly these are matters concerning far more than the interests of the adverse parties. The possession and assertion of patent rights are ‘issues of great moment to the public.’ ”

This Court is, of course, invested with broad statutory authority to reopen this case and remand the proceedings to the court below as sought by appellant’s instant motion. See *Bank of China v. Wells Fargo Bank & Union Trust Co.*, 190 F. 2d 1010 (C. C. A. 9); and see the basic statute itself, being Section 2106 of Title 28 of the United States Code, which enacts:

“The Supreme Court or any other court of appellate jurisdiction may affirm, modify, vacate, set aside or reverse any judgment, decree, or order of a court lawfully brought before it for review, and may remand the cause and direct the entry of such appropriate judgment, decree, or order, or require such further proceedings to be had as may be just under the circumstances.”

In this same connection, it is rudimentary that a district court’s judgment in a patent case which, as the judgment at bar, is final except for an accounting, nevertheless remains interlocutory in nature until ultimate determination of the accounting feature. Among several United States Supreme Court decisions so holding is *John Simmons Co. v. Grier Brothers Co.*, 258 U. S. 82, 89, 66 L. ed. 475, 42 S. Ct. 196:

"The decree of July 24, 1941, although following a 'final hearing', was not a final decree. It granted to plaintiffs a permanent injunction upon both grounds, but an accounting was necessary to bring the suit to a conclusion upon the merits . . . *As to the claim of patent infringement, the decree evidenced a quasi definitive decision adverse to plaintiffs, which, if nothing occurred to prevent, would in due course be carried into the final decree. But it did not constitute a separation of the cause, nor dismiss defendant from the jurisdiction for any purpose; necessarily this decision remained in abeyance until the cause should be ripe for final decree; there was nothing to take the case out of the ordinary rule that there can be but one final decree in a suit in equity.*" (Our emphasis)

Under this test it is immaterial that an interlocutory order fully adjudicates most issues in controversy, including title and infringement, so long as even one question remains open for future disposition. It nonetheless remains interlocutory since it has not finally terminated the litigation. In addition to *John Simmons Co. v. Grier Brothers Co.*, *supra*, see *General Motors Corp. v. Franklin Die Casting Co.*, 41 F. Supp. 340, 342-343 (N. D. Ill.), which quotes from and follows the *Grier Brothers* opinion, and adds:

"A judicial inquiry before a Master is still necessary in order to ascertain the amount of damages to be awarded before a final decree may be entered."

"'. . . a final decree is one that terminates the litigation, and it is immaterial that an interlocutory order for all practical purposes finally adjudicates most important points, title and infringement.'"

"In *Bassick Mfg. Co. v. Larkin Automotive Parts Co.*, D. C. 23 F. 2d 92, 93, Judge Lindley said: 'Consequently, being a decree awarding a perpetual injunction in a patent suit, but including an order of reference to a master to ascertain the damages suffered because of the infringement, it is unquestionably only interlocutory, and not final, * * *.'"

See, also, *Fidelity Trust Co. v. Board of Education*, 174 F. 2d 642 (C. C. A. 7); *American United Life Ins. Co. v. Haines City, Fla.*, 117 F. 2d 574 (C. C. A. 5); and *Kliaguine v. Jerome*, 91 F. Supp. 809 (E. D. N. Y.).

Accordingly, the judgment affirmed by this Court herein remains interlocutory, since, as this Court itself points out, the court below merely:

"... granted an injunction prohibiting further infringement of the claims *and ordered an accounting for damages.*" (Opinion, pp. 2-3; our italics)

"... [and] reserved decision on any prayer for increased damages or attorney's fees until after determination of appellee's damages." (Opinion, p. 8)

Moreover, even apart from the general principles aforesaid, the relief requested by appellant is squarely countenanced by an authoritative line of federal decisions dealing specifically with the precise issue posed by the instant motion. The leading case on this proposition is *Gairing Tool Co. v. Eclipse Interchangeable Counterbore Co.*, 48 F. 2d 73 (C. C. A. 6), where the court wrote:

"Appellant, defendant below, files a petition for rehearing upon the ground of newly discovered evidence of prior public use . . . Although this petition

is supported by affidavits and drawings, such evidence is not of the type which we may consider upon an appeal, it not having been presented to the court below, and it is therefore incompetent to support a petition for rehearing as such. However, we are at liberty to consider such petition for a rehearing as an application for leave to file a petition in the District Court to reopen the case, and to remand the cause to the District Court for that purpose. This action will be taken only if the newly discovered evidence is of that substantial character which seems, *prima facie*, to seriously threaten the validity of the patent, and if it does not appear upon the showing made that the petitioner was guilty of laches in the discovery and presentation of such evidence to the court.

“In the present instance . . . the drawings and affidavits constitute substantial evidence seriously threatening the validity of the patent; but whether or not such evidence is in truth sufficient to defeat the patent is primarily a question for the District Court upon a more complete presentation of the facts.” (p. 75)

“A reopening would be distinctly in furtherance of justice, especially since publicity has been given to the alleged prior use. If such evidence be sufficient to avoid a decree of injunction and accounting against other manufacturers, the appellant should not be the only manufacturer so enjoined. However, the application comes exceedingly late in the litigation, after trial in the District Court, and after hearing and decision in the Court of Appeals, and it is therefore discretionary with the court to impose terms. (Citations)

“It is accordingly ordered herein that the mandate be stayed, the decree of affirmance heretofore

entered herein be suspended, that leave be granted to file a petition in the District Court to reopen this cause, and that the cause be remanded to the District Court for the purpose of entertaining such petition; but should such petition to reopen be granted, it is further ordered that appellant pay to appellee the sum of \$2,500, expenses and counsel fees, as a condition to securing such relief." (p. 76)

This principle was followed by this Court in *Gratiot v. Farr Company*, No. 13352, by its order of May 27, 1953 (not officially reported), as well as by numerous other federal decisions. See, for example, *Marconi Wireless Telegraph Company of America v. United States*, 320 U. S. 1, 47, 87 L. ed. 1731, 63 S. Ct. 1393, where a remand for consideration of newly presented evidence was ordered. And see *Zachos v. Sherwin-Williams Co.*, 166 F. 2d 79, 80-81 (C. C. A. 5), where, upon motion for rehearing of the Court's opinion, it was held per curiam:

"The ground for rehearing now pressed is that the case in the district court should have been reopened on the timely motion there made to receive newly discovered evidence as to use by others of the patented device more than two years prior to the application of Holmes . . ."

"The motion ought not to work a general new trial, but there is much good sense in the position taken in *Gairing Tool Co. v. Eclipse*, *supra*, that it is better now to investigate fully the matter of anticipation than to allow other infringers of Holmes, who now by this record are informed of the claimed anticipation, to establish it and destroy the Holmes patent as to themselves and the world except Zachos, who

would remain bound by it as a matter of *res judicata*. A patent is a monopoly granted by the public and is of public interest, and ought to exist against all or none . . . we order that our judgment of affirmance be suspended and that no mandate issue on it; and direct that the district court hear further evidence solely on the issue of prior use, and make findings of fact and conclusions of law thereon, and cause the same to be certified to this court to be considered by us as part of the record on this appeal. The parties will be thereafter given further hearing in this court."

See, also, *D. W. Bosley Co. et al. v. Wirfs*, 20 F. 2d 629 (C. C. A. 8); *Firestone Tire & Rubber Co. v. Seiberling*, 245 Fed. 937 (C. C. A. 6); and *Cincinnati Traction Co. v. Pope*, 212 Fed. 719 (C. C. A. 6).

It is submitted, therefore, that the remand requested by appellant is fully supported by clear precedent and should be granted.

III.

The Record Does Not Convict Appellant of Laches With Respect to Its Newly Discovered Evidence

The affidavit of Frederick W. Lyon, independently filed with this Court in connection with the instant motion, demonstrates that neither appellant nor its counsel had any knowledge of the Darby prior art patent before April 12, 1956, when the opinion was rendered herein, but that the first knowledge acquired by appellant or its counsel regarding the Darby patent was on April 19, 1956. The affidavit further demonstrates that three separate searches, each of them believed to be exhaustive, were

undertaken by appellant prior to the trial below, but that none of them revealed the Darby patent which was discovered, quite by accident, on April 19, 1956, in the course of an independent search for material wholly unrelated to the suit at bar.

Under the circumstances, and particularly in view of the public interest involved in the present issue, we submit there is nothing in the instant record which could justify the imputation of laches to appellant (*Gairing Tool Co. v. Eclipse Interchangeable Counterbore Co.*, *supra*, 48 F. 2d at 76), and that, per contra, appellant has clearly demonstrated it did not possess, and, notwithstanding the exercise of reasonable diligence, was unable to obtain knowledge of the significant Darby patent prior to April 19, 1956. The timeliness of appellant's present motion is further fortified by the fact that until the April 12, 1956, decision of this Court appellant did not anticipate that the prior art theretofore adduced by it would be rejected merely because it pertained to fireplaces, and did not anticipate the importance accorded by this Court to the *combination* of a secondary heat exchanger or economizer with a primary gas-fired heater such as the Darby patent exemplifies. Compare *Zechos v. Sherwin-Williams Co.*, *supra*, 166 F. 2d at 81:

"A patent is a monopoly granted by the public and is of public interest, and ought to exist against all or none. Because of the misconception of Zachos in the trial that his device did not infringe, and therefore did not anticipate, and because of the failure really to try the issue of prior use, we order that our judgment of affirmance be suspended . . ."

For the reasons and upon the authorities aforesaid, it is respectfully requested that this cause be remanded to the court below for further trial and determination by reason of the newly discovered Darby patent.

PETITION FOR REHEARING

COMES NOW appellant in the above entitled cause and respectfully requests that this Court grant a rehearing of this controversy, for the following reasons: (1) a key portion of this Court's decision is based upon a misconception of appellant's structures; (2) combining a wall heater and an economizer in a compact unitary structure is not a *result* satisfying the requirements of *The Great Atlantic & Pacific Tea Company v. Supermarket*, 340 U. S. 147, 95 L. ed. 162, 71 S. Ct. 127 (hereinafter referred to as "the A & P decision"); and (3) the structure asserted by appellee to be the novel and unique feature — namely, and exclusively, the *source* of the air which is introduced into the bottom of its economizer — has no bearing upon "compactness" or any of the other features stressed by this Court in sustaining appellee's invention, and has not been demonstrated or shown to yield any new or unexpected results as required by the A & P decision.

I.

A Key Portion of the Decision of This Court Is Based Upon a Misconception of the Structures Involved

Apparently recognizing the difficulty of placing a finger upon any identifiably new or unexpected result flowing from the combining of a wall heater and an economizer as set out in the Holly patent, this Honorable Court has in its opinion formulated a new idea as to the contribution of the Hollingsworth et al. patent. The Court

indicates that the patent evinces an advance over prior structures in that the patented device is a compact unitary wall heater device useful with gas and adapted to modern living, this contribution being defined on page 23 of the opinion as follows:

“the Holly patentees clearly appear to have parted company with the basic design portrayed by these concepts to create something new in overall construction and functional operation — a compact unitary wall device which could easily be adapted to the modern pattern and mode of living under conditions of urban life (or where gas would be available) and where an effective and reliable single-room gas-burning heater device would be highly desirable and certainly very useful.”

Again, on page 15 of its opinion this Court suggests that “surprising consequences” may flow from the fact that the heater and economizer are brought together into a compact wall combination forming an integrated unit or structure. And see quotations from the opinion assembled, *infra*, in appellant’s separate motion to remand for further hearing.

As a key to the foregoing, at page 14 of its opinion this Court quotes from *Bates v. Coe*, 98 U. S. 31, 48, 25 L. ed. 68. Inasmuch as this is the only quotation from any decision included in this Court’s opinion on this determinative issue, we here repeat the presumably vital pronouncement:

“Where the thing patented is an entirety, consisting of a single device or combination of old elements, incapable of division or separate use, the respondent

cannot escape the charge of infringement by alleging or proving that a part of the entire thing is found in one prior patent or printed publication or machine, and another part in another prior exhibit, and still another part in a third one, and from the three or any greater number of such exhibits draw the conclusion that the patentee is not the original and first inventor of the patented improvement."

The foregoing decision in *Bates v. Coe* declares that where the thing patented is an entirety, consisting of a single device *which is incapable of division or separate use*, the defendant cannot combine patents to anticipate the patent in suit.

We submit that the foregoing crucial portion of the decision of this Court is based upon a misconception of the structures involved in this case, particularly appellant's structures to which the opinion is applied.

Defendant's economizer and heater structure are *not* a single device "incapable of division or separate use." On the contrary, defendant's structures are made in separate units which are installed separately, and one of the units may be used independently and without the other. We regret very much that we have not made this clear to the Court in our earlier briefs.

If the Honorable Court will turn to record page 803, it will be noted in the first sentence that appellant's economizer is a unit which is applied to any one of the several wall heater models sold by appellant. This economizer is a completely separate unit; and, as indicated in the in-

stallation instructions, it is installed separately, the installation being somewhat different in new houses than in old houses. In each instance, however, the economizer unit is installed by itself and separately, leaving space for the later insertion of a lower wall heater. On page 804 the economizer is shown fully installed and leaving an open space below into which the wall heater itself can be later inserted.

We fear also that we have not made clear to the Court that appellant's wall heater is *used* separately, without an economizer, in any room which does not require extra heat, and that the use of such a gas fired wall heater by itself is not charged to infringe. It is not charged to infringe for two reasons: (1) the lower heater structure is not used with an economizer unit, and (2) this structure was old and in use long before the Holly patent was applied for.

There is no controversy about the fact that appellant's wall heater (without the economizer unit) was on the market and in use long before the Holly patent was applied for, and this is acknowledged to be prior art. Appellant's early gas fired wall heater, known as the Coleman No. 60, was substantially the same as the wall heaters considered in this suit. In other words, this old prior use gas-fired heater (No. 60) of appellant had a lower box equipped with the combustion box of a gas burner, and air was admitted through a lower grill and discharged through an upper grill. The box was spaced from the wall, and air flowed upwardly around the box and then escaped around the flue into the attic (R. 320-324; R. 159-60).

The advance attributed to the Holly patent on page 23 of this Court's decision, as quoted above, is completely descriptive of appellant's old gas fired wall heater acknowledged as prior art to the Holly patent.

Since appellant does not employ a single compact device which is incapable of division or separate use, but, instead, employs a separate wall heater, and installs its heater and its economizer box separately, it is submitted that the decision in *Bates v. Coe* is applicable in calling for a conclusion opposite to that reached by the Court. Appellant should be permitted under this decision to refer to a prior patent showing an independent economizer used with a heating device, and to employ such an economizer with its old gas fired wall heater where such economizer operates for its usual and expected purpose. As stated above, appellant sells its old gas fired wall heater alone for use in smaller rooms; and when more fuel must be burned to heat a larger space, appellant also sells a separate economizer unit which increases the amount of heat obtained from the lower structure by passing air in contact with the outlet flue. This is the old and expected purpose of an economizer.

After all, an economizer is a very simple structure. It consists, in the prior art, of nothing more than a tube or box open at its lower end to receive air, and enclosing a portion of the flue so as to bring the air in contact with the flue, thereby heating the air and cooling the flue, and with a single outlet near the top of the room through which the heated air is released into the room. When appellant wants additional heat, it should certainly be permitted to

use this well known expedient of the prior art for supplying such added heat by using an economizer box, like that shown in McLeod patent, upon appellant's old gas fired wall heater.

II.

Combining the Wall Heater and Economizer in a Compact Unitary Structure Is Not a Result Satisfying the Requirements of the A & P Decision

Combining the economizer with the gas fired heater into a compact unitary structure is a desirable feature but, under the decisions, this combination is a *structure* and not a *result*. The decisions unanimously hold that combining units into a unitary device is not patentable unless a new and unexpected result is shown. In other words, after the inventor has combined his devices into a new compact and unitary device, there still remains the problem of finding a new and unexpected result.

In *General Electric Co. v. Yost Electric Mfg. Co.*, 139 Fed. 568, 570 (C. C. A. 2d), the Court points out that constructing the lining in incandescent light sockets of a single piece, when theretofore such lining was made in two pieces, did not involve invention despite the fact that the one-piece device was cheaper and more durable and therefore very desirable, the Court stating:

“Counsel for complainant, however, invokes the application of the rule that invention may be predicated upon the discharge of a new function, and he repeatedly asserts that the new one-piece construction did involve a new function. It is nowhere distinctly stated what this new function is, but from expressions found in

complainant's brief it would seem to be based on the fact that the lining being free from open seams prevented the wires from coming in electrical contact with the outer shell. This was not new, because the old one-piece lining effected the same result in the same way, the only difference being one of shape. It is not always clear what is meant by the use of this elastic and indefinite word 'function.' But it is thought that the assertion of a new function or effect should only be sustained upon proof of novel or unexpected properties or uses capable of producing novel results. *Smith v. Goodyear Dental Vulcanite Co.*, 93 U. S. 486, 23 L. Ed. 952. We are not aware of any case where a claim for a new function has been sustained in the absence of such element of novelty or unexpectedness. We concur in the conclusion of the court below that such well-understood and obvious necessary effect of the elimination of joints as the prevention of electrical contact at the point where there was a joint is in no sense a new function or novel use, and cannot be invoked to sustain the broad claims of this patent, which merely covered the making in one piece from old material by means of an old process the old shape formerly made in two pieces, without thereby disclosing any new discovery or accomplishing any novel result."

We believe that the rule set out in the above decision governs devices such as present appellee's in which separate old units are combined into a single unit.

In *Heald v. Rice*, 104 U. S. 737, 755, 26 L. ed. 910, the Supreme Court held that the combination of an old boiler with an old furnace was not patentable, even though the combustion gases of the furnace passed through a channel

in the newly attached boiler to heat the same, because the combination of the two did not produce anything more than the aggregation of results obtained from the old devices which had at earlier periods been patented by other individuals.

In *U. S. Appliance Corp. v. Beauty Shop Supply Co.*, 121 F. 2d 149 (C. C. A. 9); Judge Wilbur, in writing the opinion of the Court, held that the combining of old elements of the art to form a single or one piece structure was not inventive, pointing out that it was old to form a structure from a plurality of pieces.

Again, in *United States Air Conditioning Corp. v. Governair Corp.*, 216 F. 2d 430 (C. C. A. 10), the Court reversed the trial judge's ruling that, with respect to a refrigeration device, the "compactness of the arrangements of the several elements in a single unit" (p. 432) represented patentable invention.

In all of the decisions it is made clear that the mere combining of old units into a new integrated structure is not in itself a new result. If the mere act of combining parts into a single unitary structure alone constituted a new result, there would be nothing further to consider. In each case, however, the Courts hold the mere act of combining units is not in itself a new result, and that, instead, such an accomplishment is not patentable unless a new and unexpected result is shown. This leaves us in the same position as before with the problem of determining whether, after combining the parts into a single unitary structure, the parts cooperate in such a way as to

produce a new and surprising result. Moreover, the A & P decision proclaims that this new and unexpected result must be affirmatively specified and demonstrated by appellee.

It should also be noted that the appellee herein has itself never advanced the suggestion that combining the economizer and heater into a single structure constitutes Holly's contribution. On the contrary, appellee has repudiated this suggestion. No charge of infringement is made with respect to the economizer and heater combinations of appellant when the air entering at the bottom of appellant's economizer does not originate in and flow from the wall space adjacent to the lower heating unit. And when defendant utilizes its lower heating unit with its upper economizer in the same casing structure, but employs a fan at the lower front economizer grill to reverse the flow of air therein — to draw air in from the ceiling of the room, sucking it down through the economizer and around the central flue whereby it becomes heated, and discharging it into the room at the bottom of the economizer — no charge of infringement is made, albeit the reversal of air passage through the economizer obviously has no bearing upon the compactness of the combination heater-economizer.

III.

The Structure Asserted by Appellee to Be Novel and Unique — Utilization by Its Upper Economizer of Air Entering It from the Top of Its Lower Gas Heater — Has Never Been Shown to Yield Any New or Unexpected Result As Required by the A & P Decision

The primary responsibility of demonstrating a new result within the requirements of the A & P case is upon plaintiff-appellee. Under the A & P principle, the district court should be compelled to specify any such result in clear and unmistakable terms. If any new and surprising result were demonstrated, assuredly it could be easily earmarked and described so that the reviewing tribunal could examine it, and so thenceforth the public could have before it an unambiguous description of such result as a means of determining infringement liability. Nor should this Honorable Court itself be obliged to ferret out from the voluminous record herein the nature of such requisite result.

What has instant appellee asserted regarding this vital factor? It will be borne in mind that, on the hotly contested issue of infringement, the sole and only controversy was whether or not appellant's economizer was designed and intended to receive its air *from the space around the lower wall furnace*. Appellant vigorously contended that its installation did not infringe the Holly patent *because* its economizer was designed to and in fact did secure all but an irrelevant miniscule of its air from the open room via a large grill provided for that very purpose in

the bottom, front face of its economizer, and that such insignificant amounts of air as accidentally entered its economizer through the small gap at its bottom performed no operative function. Appellee, on the other hand, insisted -- and introduced extensive tests and argument to establish -- that appellant's economizer drew a material portion of its air from "up around the lower or primary heat exchanger" (Brief of Appellee, p. 10). "The only conflict of testimony" on the infringement issue pertained, as appellee itself insisted, to "the amount of this air" (Brief of Appellee, p. 11) which appellee asserted to be approximately 57 per cent of all air utilized by appellant's "4 foot" economizer and 23 per cent in the "3 foot" model. In fact, the so-called "Landsberg tests" were introduced by appellee for the sole purpose of demonstrating that appellant's economizer secured from 25 to 59 per cent of its air from the area surrounding its lower wall heater, *which constituted the asserted infringement*, rather than from the open grill on the front, bottom face of the economizer, *which was permissible and would have exonerated appellant from the infringement charge were that the sole source of air entering and employed by appellant's economizer* (e. g., see Appellee's Brief, p. 25). For a succinct statement by appellee itself as to the sole factual controversy between the instant litigants on the infringement issue -- for, that is, a clear delineation between what does and what does not infringe appellee's invention -- see page 45 of appellee's brief to this Court:

"It should be pointed out that the only possible difference between the parties on the issue of infringe-

ment is whether the Coleman economizer is 'adapted to receive air flowing upward outside the first box and inside the wall' as claimed in the patent in suit."

We are not here attempting to reargue the infringement issue. However, the foregoing language is of critical importance on the related problem of invention now under consideration since it necessarily means that the only novel or unexpected result contended for appellee's combination, and the only feature thereof which appellant's heaters-and-economizers infringe allegedly upon, is *the source of the air entering appellant's economizer*.

To recapitulate for a moment, appellee does not contend that appellant's basic, *lower* wall heater infringes in any respect — although cold air at floor level is admitted at the bottom of appellant's lower heater, flows up and around the lower box drawing heat from the flue and heating unit (thereby protecting the walls from over heating and at the same time becoming heated air), and is discharged into the room through a grill at the top, front side of the heater. In short, appellant's lower heater receives the same air and performs with it the same functions employed by appellee's lower unit, but this is admittedly old art and does not represent infringement. Similarly, appellee concedes there is nothing novel about placing in the wall, above appellant's lower gas heater, a secondary heater or "economizer" — a mere box or enclosure surrounding the flue as it protrudes out of and runs on up beyond the top of the lower heater, into which box or enclosure air is introduced at one end and discharged into the room at its other end after having performed the dual

function of absorbing heat from the flue (thereby reducing wall temperature) and becoming heated itself so that, when discharged into the room via a grill at the upper end of the economizer, it assists in heating the interior of the room. In this connection we repeat, for purposes of vital emphasis, that when appellant's upper economizer is equipped with a fan at its lower, front grill so as to draw air into the economizer from the top of the room, suck it on down around the flue and down through the economizer where it absorbs heat, and then pulls that air on out into the room at the bottom, front side of the economizer, no infringement is claimed. Nor, as immediately hereinbefore pointed out, is infringement claimed with respect to an economizer which takes in room air at its *front*, bottom side, and thereafter handles that air precisely as does the Holly device, *provided none of the air entering the economizer comes from the space around the lower heater.*

In fine, appellee itself concedes the use of a wall installed gas heater combined with an attached upper economizer, which receives, utilizes, and discharges into the room air in the same manner as the Holly device, infringes the Holly invention if, *but only if*, the upper economizer admits and uses air *which originally comes up from around the lower wall heater.* By the same token, the "compactness" and "integrated" aspect of the Holly device is not and cannot possibly be the, or even "a", basis for sustaining its invention as novel or unexpected. On the contrary, the sole novelty claimed by appellee itself for its unitary device is the employment by its economizer of air drawn or received *from its lower heater.* The pat-

entability issue here involved therefore necessarily comes precisely to this: Wherein does air *originating from around the lower heating unit* have any unique value or produce any unexpected result when it is admitted to the upper economizer — as opposed, for example, to air drawn or admitted into the bottom of the upper economizer from the room at that level?

The record will be searched in vain for one iota of evidence supplying an answer to this decisive interrogatory.

The nearest approach to even a partial answer will be found, not in the testimony or proof, but in the conclusory generalities contained in column 4 of the Holly patent (Ex. 1, R. 741):

“By drawing the cold air up around the sides or back, or both, of the lower box, the neighboring wall surfaces are cooled and more fuel may be burned safely without attaining excessive lower wall temperatures. Hence, the heating capacity of the apparatus is increased. [N. B., that thus far the claim is confined exclusively to the use of such air *in the lower wall heater*, something appellant has always done in its wall heaters, and which, unless the same air is then *reused* in an upper economizer, is admittedly old art and non-infringement.] Moreover, the air for the upper heat exchange, because it is drawn from a low level has a lower temperature, so that the heat transfer from the upper radiator is increased. In this way the amount of heat imparted to the air passed through the upper box . . . is increased with a resulting improvement in over-all heating efficiency. Third, the

use of cold or low level air as feed to the secondary heat exchanger makes it possible safely to encase this secondary heat exchanger in a combustible wall. Fourth, the structure of the invention is such that the hotter air is brought out into the room at an intermediate level [i. e., at the front, top end of the lower heating unit — exactly as has always been done in appellant's gas wall heaters] while cooler but still warm air is introduced into the upper part of the room near the ceiling, thus reducing stratification and increasing air circulation in the room."

This, though, boils down merely to the bald assertion that the unique feature and novel result achieved by the Holly device *stems from the source of the air entering the upper economizer*. Wherein, though, is the utility of air from the specified source — from the space within the wall surrounding the casing of the lower wall heater — described or explained? *Wherein does that air differ from the room full of identical air available to any upper economizer at the level of the economizer's lower end?*

If the air utilized by appellee in its heater is capable of serving a unique function in its economizer — and perforce it must if appellee's own characterization of its device's novelty may be sustained — *what peculiar attributes are possessed by that particular type of air?* Bear in mind that we are not now discussing the value of cold, floor-level air *at the point where it enters the device at the bottom of the lower wall heater*, or its special utility *for use within and around the lower wall heater*. We are speaking, solely, of the alleged extraordinary quality of that same air after it has passed up from the floor through

the casing surrounding the lower wall heater, *and at the point where it then enters the bottom of the upper economizer*. Certainly the record affords no answer, clear (as required by the A & P case) or even implied, to this crucial problem.

As a matter of fact, this Court knows judicially that at the point in question — the bottom of the upper economizer — air entering the upper economizer after having risen from the floor level through the casing surrounding the lower wall heater can differ, if at all, from air admitted to the bottom of the economizer from the open room via a grill provided for that purpose in the front, bottom face of the economizer *only with respect to its temperature*. Yet where in the record or even in the *Holly* patent itself can anyone determine the temperature of the *Holly* economizer-employed air at the entrance point in the economizer's bottom? In this connection, note the summary of the *Holly* patent claim appearing on page 7 of this Court's opinion:

"Cold air (at about 70 F) is likewise admitted to the device at floor level of the lower box (as above noted) and passes up on the wall side of the box to and into the top box containing the 'secondary heat exchanger.' This air passes alongside the upper radiator and is finally discharged into the room through the upper or '2nd stage warm air discharge' at which time the air has attained a temperature of 165 F."

Note that although the vital temperature, representing the supposedly novel and unique feature of the *Holly* de-

vice, is the temperature of the air as it leaves the lower heating box casing and enters the upper economizer or "secondary heat exchanger", the claim fails to designate such temperature even generally. We are given exact temperatures of the air entering the wall heater at floor level, and exact temperatures of air discharged from the top of the upper economizer. But we are left to sheer speculation regarding the determinative fact, namely, the temperature of that lower air as it enters the bottom of the upper economizer.

Although appellee insists the unique feature of its device is the employment by its economizer of air which has first passed up through the casing surrounding its lower wall heater, undeniably it has failed utterly to demonstrate or even specify wherein that air can or does produce novel and unexpected results, or results either different or better than those obtainable from air introduced into an economizer from the room itself. Since appellee has not specified this controlling point, perforce neither the trial court nor this Court can explain or has defined the unique and unexpected result the Holly device must achieve to satisfy the A & P decision. By the same token, appellee's patent discloses no patentable invention.

As a matter of fact, the sole evidence in the record dealing with this issue affirmatively demonstrates that room air provides precisely as utilitarian a function as air drawn into an economizer from the casing surrounding the lower wall heater. Thus, see the testimony commencing at page 398 of the record herein regarding tests con-

ducted with appellant's heater-and-economizer where the economizer bottom was completely sealed off, preventing the entrance of any air whatever from inside the wall space surrounding the lower heater. In these tests appellant's economizer, *employing only air drawn into its bottom, front side from the open room*, performed with precisely the same efficiency as when it utilized air entering from below. We cite this testimony not with any thought of insisting that this Court accept it as conclusive, but merely because it is the *only* evidence on this point, and also because appellee's attitude thereto is itself significant. In its brief to this Court, appellee excused its failure to perform comparable tests to demonstrate whether or not this lower air achieved any novel results in appellant's heater-economizer by stating:

“[Appellant's complaint that appellee undertook no such tests] . . . amounts to a contention that plaintiff (in order to prove infringement) must test, not what defendant makes and sells, but something else which it does not make or sell.” (p. 26)

This answer assuredly fails to discharge appellee's basic responsibility to demonstrate in some manner that economizers achieve unexpected and unusual results by employing air taken from the lower casing. If the A & P decision has any meaning, it must mean a patentee may not escape the obligation of demonstrating that a new and surprising result flows from his method of combining old devices.

CONCLUSION

We respectfully submit we have demonstrated herein that the cause should be remanded to the court below for further trial with regard to the effect upon appellee's patent of the prior Darby patent. We further submit that, in our petition for rehearing, we have demonstrated that this Court's opinion is explainable in part upon our failure heretofore to make clear the fact that appellant's heater and economizer are separate and distinct units, separately sold and installed, and that *Bates v. Coe, supra*, accordingly compels a precisely contrary result; that the mere compactness of the Holly device is insufficient to sustain the former decision herein; and, finally, that in any and all events the record is barren of anything to sustain a finding that Holly's wall heating device achieves new, unexpected, or patentable results by reason of the mere fact that its economizer utilizes air which has first passed up through the casing surrounding its lower heating unit — notwithstanding appellee's own insistence that the use by its economizer of air from this particular source represents the only supposedly unique feature of its heater-economizer combination, and that appellant is free to manufacture, sell, and install its own heaters-with-economizers if, but only if, its economizers draw their air from some source — *any* source — other than air which has first passed through the casing surrounding appellant's lower wall heater. Perforce the decision below and the original opinion of this Court contravene the requirements of the A & P case inasmuch as, the record being silent on the

point, neither has designated or described any peculiar or novel attribute possessed by the air introduced into the Holly economizer.

We therefore respectfully request that the cause be remanded for further trial below with respect to the Darby patent — and, if this Court deems it advisable that appellee be afforded a further opportunity to explain the allegedly unique attributes of the air it so jealously claims as the exclusive property of its economizer, for additional testimony with regard to that vital issue. In any event, we respectfully request a rehearing of this Court's original opinion.

Respectfully submitted,

JOHN F. EBERHARDT,
FOULSTON, SIEFKIN, SCHOEPPPEL, BARTLETT & POWERS,
608 Fourth National Bank Building,
Wichita 2, Kansas,
General Counsel for The Coleman Company, Inc.

HORACE DAWSON,
DAWSON, TILTON & GRAHAM,
209 South LaSalle Street,
Chicago 4, Illinois,
FREDERICK W. LYON,
LYON & LYON,
811 West Seventh Street,
Los Angeles, California,
Attorneys for Defendant-Appellant.

CERTIFICATE OF COUNSEL

The undersigned, one of the attorneys for defendant-appellant in the captioned case, hereby certifies:

1. That in his judgment the foregoing Motion to Remand for Further Trial and Petition for Rehearing are both well founded, and that they are not interposed by appellant for the purpose of vexation or delay.

2. That on May 8, 1956, he served three copies of the foregoing Motion and Petition upon James B. Christie, Esq., and Richard B. Hoegh, Esq., attorneys of record for plaintiff-appellee herein, by depositing the same in the United States mails, with sufficient prepaid postage attached, properly addressed to said attorneys at 595 East Colorado Street, Pasadena 1, California.

JOHN F. EBERHARDT





